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Atlas of Ontario Mosses

Robert R. Ireland and Linda M. Ley

Canadian Museum of Nature
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ATLAS OF ONTARIO MOSSES

Robert R. Ireland
and
Linda M. Ley

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ABSTRACT

This atlas shows the distribution of 490 species and varieties of mosses presently known for the province of Ontario. The distributions are based on herbarium specimens examined and verified. Information is given on the physiography, geology, climate and vegetation of the province. A list of collectors of Ontario mosses, including the year(s) of their collecting is presented. The mosses are categorized into five main distributional types: Widespread, Southern, Northern, Eastern, and Western.

RÉSUMÉ

Cet atlas présente la répartition géographique de 490 espèces et variétés de mousses actuellement reconnues dans la province de l'Ontario. Les aires de répartition sont basées sur l'examen de spécimens d'herbier authentifiés. Des renseignements sur la physiographie, la géologie, le climat et la végétation de la province sont présentés. Une liste des collectionneurs des mousses de l'Ontario incluant les années de récolte est aussi présentée. Les mousses sont réparties en cinq principales catégories de répartition: répandu, sud, nord, est et ouest.

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We are grateful to the curators and staff of the following institutions for allowing the senior author to study their collections and use their facilities: R.F. Cain and J.C. Krug (University of Toronto); H. Crum (University of Michigan); A. Crowder (Queen's University); G. Sayre (Harvard University); G.L. Merrill and W.R. Buck (New York Botanical Garden); and H. Robinson (Smithsonian Institution). We also wish to thank the numerous collectors who over the past 20 years donated numerous specimens that were used for mapping purposes. Although there are too many to name individually, the following are especially noteworthy: S. Aiken, P. Barclay, R.S.W. Bobbette, W. Botham, V. Brownell, D. Brunton, R.F. Cain, T.J. Carleton, P.M. Catling, J.M. Crowe, F.S. Cook, H.A. Crum, B.W. Davies, A. Dugal, P. Eckel, J.Y. Gagnon, C.E. Garton, J.M. Gillett, S. Gray, C.H. Hand, A. Hanes, F.J. Hermann, W.I. Illman, J.K. Jeglum, J.W. Johnson, K.A. Kershaw, J.C. Krug, M.I. Moore, R. Muma, M.J. Oldham, J.M. Reddoch, J.L. Riley, W.B. Schofield, A.J. Sharp, G.A. Shea, M.J. Shchepanek, R. Sims, J.H. Soper, W.G. Stewart, R.G. Tozer, A. Vogg, B. Warner, D. White, C. & H. Williams, and C.A. Zoladeski. We are indebted to Gilda Bellolio-Trucco, Patricia Narraway and Yves Boudreau who devoted many hours to preparing the maps for publication. We appreciate the assistance of the library staff of the Canadian Museum of Nature who provided important references. We thank George Argus for allowing us to use his outline map. Finally, we are grateful to Sharon Helman and Bonnie Livingstone for their assistance with the publication of this atlas.

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INTRODUCTION

This atlas of Ontario mosses shows the distribution of all 490 species and varieties presently known for the province. The work on the distribution of the mosses in the province is an extension of an earlier publication (Ireland and Cain 1975) of a checklist of the mosses of Ontario that was started in 1971. In that publication the distribution of each species and variety was listed for each county and district in the province. The work stimulated collecting in counties and districts that were poorly sampled, and the knowledge of the moss flora increased at a rapid rate as a result.

The map localities are based on herbarium specimens examined and verified by the senior author. The specimens are contained mainly in the Canadian Museum of Nature (CANM) and the University of Toronto (TRTC). Some specimens have been seen in other herbaria as well, including Queen's University (QK), Harvard University (FH), University of Michigan (MICH), New York Botanical Garden (NY), and Smithsonian Institution (US). The label data for all distribution records are kept on file in the Canadian Museum of Nature in Ottawa. Information concerning any of these records may be obtained by contacting the Bryology Section, Canadian Museum of Nature, P.O. Box 3443, Station D, Ottawa, Ontario K1P 6P4, Canada.

The nomenclature is essentially that of Ireland *et al.* (1987) with recent additions by Anderson *et al.* (1990) and Anderson (1990) for *Sphagnum*.

PHYSIOGRAPHY AND GEOLOGY

Ontario (Fig. 1) is an immense province, extending over 1,600 km from its southern tip at Point Pelee (41° 57' N) to its northern limit on the Hudson Bay (56° 50' N). It stretches almost as far east to west from the St. Lawrence River on the Quebec border (75° 20' W) to the Lake of the Woods on the Manitoba border (95° 10' W). The total land area is 1,072,713 sq. km.

The basic structural feature underlying most of Ontario is the Canadian (Precambrian) Shield. That portion which lies within Ontario is only a small part of the total area of the shield occurring throughout Canada. The Precambrian rocks of the shield in Ontario are between 2.5 billion and 800 million years old, but in many areas younger sedimentary rocks have been deposited over them.

The province is comprised of four physiographic regions (Bostock 1970): Hudson, James, Laurentian and St. Lawrence Lowlands.

The Hudson Region includes the Hudson Bay Lowland, the large area around Hudson Bay in the extreme northern part of the province. It comprises one-quarter of the land surface of Ontario. The region is a low, swampy, marshy plain with a belt of raised beaches that border the bay. The area slopes gently towards James and Hudson bays. Elevations reach 60-180 m above sea level. Paleozoic marine sedimentary rocks cover massive or stratified Precambrian rocks.

The James Region, which lies immediately below the Hudson Region, is the largest of the four physiographic regions. It is comprised of uplands with broad rolling hills, sometimes rugged, that rise gently from the Hudson Bay Lowland to about 460 m in their higher parts near the southwest and southern borders. Most of the uplands are 270 to 370 m in elevation. Precambrian strata of mostly granitic rocks cover most of the region, but there are many areas of mainly volcanic, sedimentary and intrusive rocks occurring throughout. Numerous lakes of various sizes are scattered throughout the region. One of the largest lakes, Lake Nipigon, is situated in the southwestern part of the region just above the north shore of the northernmost of the Great Lakes, Lake Superior. Deep canyons cutting through diabase, e.g. Ouimet and Cavern Lake, occur in the region between lakes Nipigon and Superior. Also in this region are cuestas and ridges of sedimentary rock, some extending as promontories into Lake Superior. They rise in places to ca. 240 m above the lakes and adjacent valleys. In the southeastern part of the region above Lake Huron are hills of sedimentary rock that are mostly 240 to 300 m in elevation.

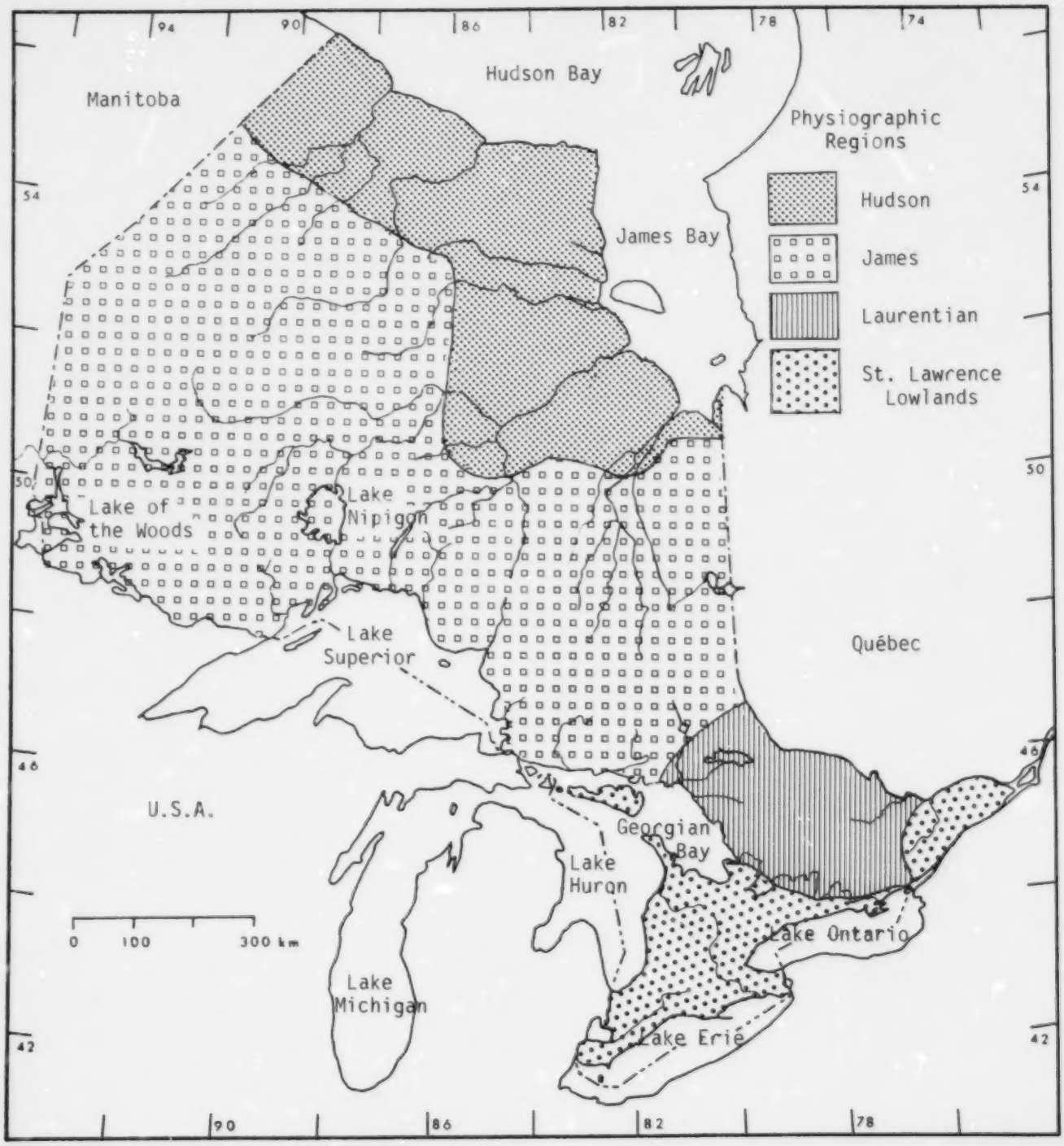

Figure 1. Map of Ontario showing physiographic features and regions.

The Laurentian Region is a small area of hilly terrain in the southeastern part of the province that rises abruptly above the St. Lawrence Lowlands. The hills are formed of Precambrian metamorphic rocks with some volcanic, sedimentary and intrusive rocks.

The St. Lawrence Lowlands Region, which is in the extreme southeastern part of the province, is dissected by the Laurentian Region in the upper part. It is comprised of a series of highlands that are separated by lowlands of Paleozoic marine sedimentary rocks. The region is bounded by the lower Great Lakes, Ontario, Erie and Huron. The Niagara Escarpment is the most important topographic feature of the region. The escarpment extends in a sinuous westerly and northwesterly course to the Bruce Peninsula and Manitoulin Island. It is a northeasterly facing cuesta of Silurian carbonates that attains an elevation of 200 m in the south, rising about 90 m above the surrounding terrain, to 520 m in the northwest, about 300 m above Lake Huron along the south shore of Georgian Bay. Numerous waterfalls occur along the escarpment, the most important of which is Niagara Falls.

CLIMATE

Ontario is in three climatic regions (Hare and Thomas 1979): the southeastern part (i.e., the area in the St. Lawrence Lowlands physiographic region) is in the Great Lakes-St. Lawrence Region; the northern part, which is the largest part, is in the Boreal Region; and a narrow band 15-30 km broad bordering the Hudson Bay is in the Arctic Region.

The Great Lakes-St. Lawrence Region basically has a continental climate (i.e., warm summers and cold winters), although in the central and western parts the climate is noticeably modified by the Great Lakes. The summers are usually longer and warmer in this region than those in any other part of Canada. The mean daily temperature average during the warmest month (July) in the southern part of the region is 22° C, while it is 21° in the northern part. During the coldest month (January) the mean daily temperature average is -4° C in the south and -11° C in the north. The mean yearly temperature average in the south is 9.2° C and 6° C in the north.

Precipitation is evenly distributed throughout the year in the Great Lakes-St. Lawrence Region. The total yearly precipitation average is 836 mm in the southern part and 851 mm in the northern part. The highest amount of precipitation is in the summer (84 mm in June in the south and 82 mm in August in the north), while the winter has the lowest amount (52 mm in February in the south and 57 mm in the same month in the north). In the summer most of the rainfall is attributable to showers and thunderstorms. Snow can generally be expected from November to March. The Great Lakes are responsible for an abundance of snow in well-marked "snow belts" in their lee through the lake effect. In the Georgian Bay region normal snowfall exceeds 250 cm a year.

The Boreal Region has appreciable snow cover for more than half of the year. Winters are cold and summers are short, although they may be hot. The mean daily temperature average at different latitudes throughout the region during the warmest month (July) is 16° to 17° C, while it is -18 to -24° C in the coldest month (January). The mean yearly temperature average is 0.7 to -3.1° C.

Precipitation in the Boreal Region is highest during the summer months, ranging from 67 to 99 mm, and lowest during the winter, ranging from 21 to 56 mm, depending on the locality. The total yearly precipitation average is 597 to 871 mm.

The Arctic Region along the Hudson Bay has long and cold winters dominated by arctic airstreams. The mean yearly temperature average is ca. -5° C. Precipitation is light but evaporation rates are low. The total yearly precipitation average is 640 to 800 mm.

VEGETATION

Ontario has four regions (Fig. 2) of natural-vegetation (Rowe 1972): Deciduous (Carolinian) Forest, Great Lakes-St. Lawrence Forest, Boreal Forest, and Tundra. These four regions are characterized by their dominant trees and other plants, including the mosses. The regions are related to temperature as expressed in the length of the growing season and, therefore, their boundaries are not sharply delimited. A brief discussion primarily of the trees in the regions follows. For a more detailed list of the other vascular plants consult Falls and Soper (1964) and Scoggan (1966).

The Deciduous (Carolinian) Forest Region contains many different species of deciduous trees, some of which are found nowhere else in Canada. The dominant trees are sugar maple (*Acer saccharum* Marsh.), red maple (*Acer rubrum* L.), beech (*Fagus grandifolia* Ehrh.), basswood (*Tilia americana* L.), white ash (*Fraxinus americana* L.), red oak (*Quercus rubra* L.), white oak (*Quercus alba* L.), black cherry (*Prunus serotina* Ehrh.), ironwood (*Ostrya virginiana* (Mill.) K. Koch), American elm (*Ulmus americana* L.), shagbark hickory (*Carya ovata* (Mill.) K. Koch), and butternut (*Juglans cinerea* L.). Typical southern deciduous trees, some reaching their northern limit in Ontario, are sassafras (*Sassafras albidum* (Nutt.) Nees), black walnut (*Juglans nigra* L.), wild crab-apple (*Malus coronaria* (L.) P.Mill.), flowering dogwood (*Cornus florida* L.), tulip-tree (*Liriodendron tulipifera* L.), pawpaw (*Asimina triloba* (L.) Dunal), sour gum (*Nyssa sylvatica* Marsh.), red mulberry (*Morus rubra* L.), and chestnut-oak (*Quercus prinus* L.). Some coniferous trees, such as white pine (*Pinus strobus* L.), eastern hemlock (*Tsuga canadensis* (L.) Carr.), eastern white cedar (*Thuja occidentalis* L.) and red cedar (*Juniperus virginiana* L.), are scattered among the deciduous trees, while others, like black spruce (*Picea mariana* (Mill.) BSP.) and tamarack (*Larix laricina* (Du Roi) K. Koch), are restricted to isolated bogs or cool wet woods.

The Great Lakes-St. Lawrence Forest Region is a transition between boreal and deciduous forests. Deciduous trees that are common to the region include northern species, such as white birch (*Betula papyrifera* Marsh.), yellow birch (*Betula alleghaniensis* Britton), trembling aspen (*Populus tremuloides* Michx.), and balsam poplar (*Populus balsamifera* L.) as well as the other species common to the Deciduous Forest Region, namely sugar maple, red maple, beech, basswood, red oak, ironwood, and American elm. Other deciduous trees that are locally abundant are black ash (*Fraxinus nigra* Marsh.), bur oak (*Quercus macrocarpa* Michx.), large-toothed aspen (*Populus grandidentata* Michx.), and showy mountain-ash (*Sorbus decora* (Sarg.) C.K. Schneid.). Common conifers of the region are white pine, white spruce, balsam fir (*Abies balsamea* (L.) Mill.) and white cedar. Hemlock is common in the southern parts of the region, while red pine (*Pinus resinosa* Ait.), jack pine (*Pinus banksiana* Lamb.), black spruce and tamarack are locally abundant in some habitats.

The Boreal Forest Region is the most extensive region in Ontario. It is predominately comprised of coniferous trees, mainly white spruce, black spruce, balsam fir, tamarack and jack pine. The deciduous trees are primarily white birch, trembling aspen and balsam poplar. In the northern part of the region, i.e., the Hudson Bay Lowlands, extensive areas are covered by black spruce muskeg and tamarack bogs.

The Tundra Region is a treeless band, up to 30 km broad, of open peatland along the coast of Hudson Bay. Scattered individuals of dwarf spruce and tamarack occur inland. There is a heath-like cover, varying from an open to a dense mat of mosses and lichens with a low layer of woody plants and scattered herbaceous perennials. Woody plants include Labrador-tea (*Ledum groenlandicum* Oeder), dwarf Labrador-tea (*Ledum decumbens* (Ait.) Lodd.), mountain avens (*Dryas integrifolia* Vahl.), dwarf birch (*Betula glandulosa* Michx.), alpine bearberry (*Arctostaphylos alpina* (L.) Spreng.), crowberry (*Empetrum nigrum* L.), soapberry (*Shepherdia canadensis* (L.) Nutt.), Lapland rosebay (*Rhododendron lapponicum* (L.) Wahl.), ground juniper (*Juniperus communis* L. var. *depressa* Pursh) and several species of willows (e.g., *Salix arctica* Pall., *S. arctophila* Cock. *ex* Heller, *S. brachycarpa* Nutt., *S. planifolia* Pursh, and *S. reticulata* L.).

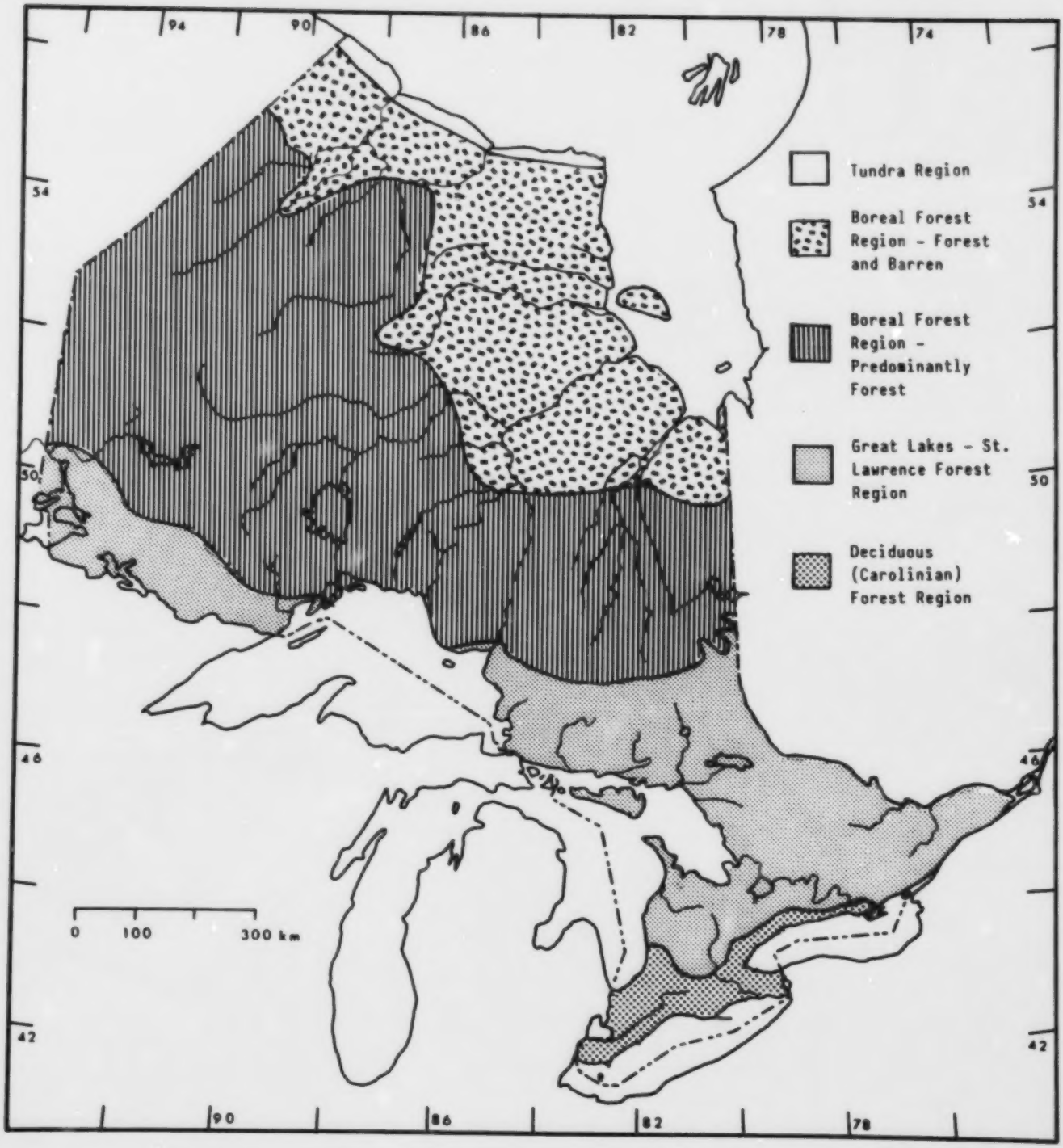

Figure 2. Map of Ontario showing natural-vegetation regions.

COLLECTORS

The following is a list of collectors of Ontario mosses, including the year(s) of their collecting. Only those persons making numerous collections or those with the only record for a particular species or variety are listed.

Ahti, T. 1956
Aiken, S.G. 1981, 1984, 1986, 1989
Allen, B.H. 1990
Anderson, L.E. 1956
Andrus, R.E. 1976
Attridge, I. 1984
Bailey, J.A. 1956-57
Baldwin, W.K.W. 1957
Barclay, P. 1970, 1974-5, 1985
Barnston, G. 1873
Bell, R. 1883-84
Bellolio-Trucco, G. 1978
Bentley, P.A. 1957
Billings, B. 1860-62
Bobbette, R.S.W. 1979, 1983
Botham, W. 1967, 1976
Bowers, F.D. 1981, 1990
Brassard, G.R. 1963
Brodo, I.M. 1965-69, 1981
Brown, H.H. 1938-46
Brownell, V.R. 1978, 1980
Brunton, D.F. 1971, 1988
Burgess, C.M. 1875
Burgess, T.J.W. 1881-82, 1888
Cain, R.F. 1929-68, 1972
Carleton, T.J. 1973-75
Catling, P.M. 1971-77, 1980-81
Clarkson, F.A. 1942-45
Cody, W.J. 1954, 1958, 1975
Cook, F.S. 1952, 1969-87
Cook, I. 1970-76
Crum, H.A. 1954-64, 1977
Davies, B.W. 1966
Davison, C.S. 1958-59 (also as Williams, C.)
Dearness, J. 1887-89
Dickson, H.L. 1973-75
Dore, W.G. 1947-54, 1958
Drexler, R.V. 1935, 1938-39
Drummond, T. (years?)
Dugal, A.W. 1982-88
Dutchak, D.M. 1967
Eckel, P.M. 1978, 1983-85
Fowler, J. 1859, 1874, 1881-92, 1902
Gagnon, J.Y. 1985, 1989
Garton, C.E. 1956-83
Gillett, J.M. 1940-48, 1954, 1973, 1978-80
Grassl, C.O. 1931-32
Hand, C.H. 1928-68, 1971-72
Hanes, A. 1979-80
Hermann, F.J. 1959-60
Hosie, R.C. 1935, 1938
Inoue, S. 1971
Ireland, R.R. 1961-90
James, L.E. 1950-52, 1955
Jaquith, L.E. 1939, 1949
Jeglum, J.K. 1970-73, 1976, 1979-80
Johannesen, J.K. 1969-70, 1973
Johnson, J.W. 1979-82, 1984-88
Judd, W.W. 1968
Kershaw, K.A. 1971-72
Koponen, T. 1971
Kucyniak, J. 1947
Kuwahara, Y. 1959
Larsen, J.A. 1959
Ley, L.M. 1979-90
Losee, S.T.B. 1957, 1961
Macoun, J. 1862-1907
Manville, C. 1973
Maycock, P.F. 1961, 1972-74
McCulloch, M.V. 1918
Miller, N.G. 1962
Millman, T. 1879-81
Moore, M.I. 1964-71, 1975-77
Moxley, E.A. 1924-47
Muma, R. 1975-78, 1983
Oldham, M.J. 1981-85
Orloci, L. 1965-66
Phipps, J.B. 1961, 1970
Reddoch, J.M. 1978-87
Reznicek, A.A. 1971-72, 1974
Riley, J.A. 1972-79, 1983, 1985-89
Robbins, W.W. 1911
Robertson, A.D. 1908
Roy, J.D. 1888
Roy, W. 1876
Schofield, W.B. 1952, 1961, 1965, 1970, 1975

Scott, W. 1890, 1893-96, 1898
Shchepanek, M.J. 1967-68, 1973, 1979, 1982-90
Sharp, A.J. 1955-57, 1959-61, 1963-64
Shea, G.A. 1970, 1976
Simon, J.A. 1939, 1942
Sims, R.A. 1977-79
Soper, J.H. 1949, 1961
Spreadborough, W. 1904
Stewart, W.G. 1969-90
Taylor, T.M.C. 1930-31
Tuomikoski, R. 1947
Vitt, D.H. 1982
Vogg, A. 1983-90
Walker, T.L. 1892-93
Warner, B.G. 1979
Watson, W.Y. 1948, 1983-84, 1987
Wetmore, C.M. 1958-59
White, D.J. 1976, 1984-85
White, J. 1891-93
Whitehouse, E. 1949
Williams, C. 1959-68 (also as Davison, C.S.)
Williams, H. 1956-64, 1970-71, 1975, 1978, 1985
Wood, A.A. 1961
Zander, R.H. 1978, 1983, 1985
Zoladeski, C.A. 1985, 1987

DISTRIBUTION PATTERNS OF ONTARIO MOSSES

A study of the distribution maps reveals that the Ontario mosses can be grouped into the following five main categories reflecting their habitat and geographic relationships (Table 1): Widespread (subdivided into Widespread-Throughout, Widespread-Southern Bias and Widespread-Northern Bias), Southern, Northern, Eastern, and Western.

Table 1. Distributional types recognized in Ontario mosses.

Ontario Distributional Type	No. of Mosses	% of Total Flora
1. Widespread	269	55
Throughout	(130)	(48)
Northern Bias	(77)	(29)
Southern Bias	(62)	(23)
2. Southern	90	18
3. Northern	40	8
4. Eastern	15	3
5. Western	8	2
Uncertain (Insufficient Data)	68	14
Total	490	100

A portion of the taxa are left unclassified (Uncertain) because of insufficient collections, a result of either inadequate field work or their rarity, making it impossible to determine their distribution pattern.

It was sometimes difficult to place a taxon into any of the five categories because of widely disjunct localities from their main center of distribution. We placed *Calliergonella cuspidata* and *Cirriphyllum piliferum*, for example, into the Southern distribution pattern because the majority of collections are from southern Ontario and we did not feel either species would likely be found to any great extent outside this region in spite of their few disjunct localities in northern and western Ontario.

In other cases some taxa have been classified on the basis of only a few records because of their known distribution pattern in the rest of North America. *Dicranella cerviculata*, for example, recorded from only two Ontario localities, both below 48° N latitude, is classified as Northern since we believe it will eventually be found more frequently in the northern latitudes, based on its predominantly boreal distribution elsewhere in North America.

It should be noted that two of the mosses are endemic to Ontario, namely *Tortula cainii* and *Neomacounia nitida*. *Tortula cainii*, which was first collected in 1941, to our knowledge was last collected in 1978, but *Neomacounia nitida*, which was last collected in 1864, has not been collected since and it is believed to be extirpated.

A list of the species in each distributional type follows.

WIDESPREAD (269 taxa-55%)

Widespread-Throughout (130 taxa- 48%)

Amblystegium humile (P. Beauv.) Crundw.
A. serpens (Hedw.) B.S.G.
Aulacomnium palustre (Hedw.) Schwaegr.
Brachythecium campestre (C. Müll.) B.S.G.
B. erythrorrhizon B.S.G.
B. oedipodium (Mitt.) Jaeg. & Sauerb.
B. plumosum (Hedw.) B.S.G.
B. populeum (Hedw.) B.S.G.
B. salebrosum (Web. & Mohr) B.S.G.
Bryoerythrophyllum recurvirostre (Hedw.) Chen
Bryohaplocladium microphyllum (Hedw.) Wat. & Iwats.
Bryum algovicum Sendtn. ex C. Müll.
B. caespiticium Hedw.
B. calophyllum R.Br.
B. lisae var. cuspidatum (B.S.G.) Marg.
B. pallescens Schleich. ex Schwaegr.
B. pseudotriquetrum (Hedw.) Gaertn., Meyer & Scherb.
Calliergon cordifolium (Hedw.) Kindb.
C. giganteum (Schimp.) Kindb.
Campylium chrysophyllum (Brid.) J. Lange
C. hispidulum (Brid.) Mitt.
C. polygamum (B.S.G.) C. Jens.
C. stellatum (Hedw.) C. Jens.
Ceratodon purpureus (Hedw.) Brid.
Climacium dendroides (Hedw.) Web. & Mohr
Cratoneuron filicinum (Hedw.) Spruce
Dicranella schreberiana var. robusta (Schimp. ex Braithw.) Crum & Anders.
Dicranum bonjeanii De Not. ex Lisa
D. flagellare Hedw.
D. fuscescens Sm.
D. montanum Hedw.
D. ontariense Peters.
D. polysetum Sw.
D. scoparium Hedw.
D. undulatum Brid.
Distichium capillaceum (Hedw.) B.S.G.
Drepanocladus aduncus (Hedw.) Warnst.
D. aduncus var. polycarpus (Bland ex Voit) Roth
D. capillifolius (Warnst.) Warnst.
D. exannulatus (B.S.G.) Warnst.
D. fluitans (Hedw.) Warnst.
D. vernicosus (Mitt.) Warnst.
Encalypta ciliata Hedw.
Eurhynchium pulchellum (Hedw.) Jenn.
Fissidens osmundioides Hedw.
Fontinalis hypnoides C.J. Hartm.
F. novae-angliae Sull.
Funaria hygrometrica Hedw.
Gymnostomum aeruginosum Sm.
G. recurvirostrum Hedw.
Hedwigia ciliata (Hedw.) P. Beauv.
Helodium blandowii (Web. & Mohr) Warnst.
Herzogiella turfacea (Lindb.) Iwats.
Hygrohypnum luridum (Hedw.) Jenn.
Hylocomium pyrenaicum (Spruce) Lindb.
H. splendens (Hedw.) B.S.G.
Hypnum lindbergii Mitt.
H. pallescens (Hedw.) P. Beauv.
H. pratense W. Koch ex Spruce
H. revolutum (Mitt.) Lindb.
Leptobryum pyriforme (Hedw.) Wils.
Mnium ambiguum H. Müll.
M. marginatum (With.) Brid. ex P. Beauv.
M. spinulosum B.S.G.
Myurella julacea (Schwaegr.) B.S.G.
M. sibirica (C. Müll.) Reim.
Neckera pennata Hedw.
Oncophorus wahlenbergii Brid.
Orthotrichum obtusifolium Brid.
O. speciosum var. elegans (Schwaegr. ex Hook. & Grev.) Warnst.
Philonotis fontana (Hedw.) Brid.
Plagiomnium ciliare (C. Müll.) Kop.
P. cuspidatum (Hedw.) Kop.
P. ellipticum (Brid.) Kop.

Plagiomnium medium (B.S.G.) Kop.
Plagiothecium denticulatum (Hedw.) B.S.G.
P. laetum B.S.G.
Platydictya subtilis (Hedw.) Crum
Platygyrium repens (Brid.) B.S.G.
Pleurozium schreberi (Brid.) Mitt.
Pohlia cruda (Hedw.) Lindb.
P. nutans (Hedw.) Lindb.
P. wahlenbergii (Web. & Mohr) Andr.
Polytrichum commune Hedw.
P. commune var. perigoniale (Michx.) Hampe
P. juniperinum Hedw.
P. longisetum Brid.
P. piliferum Hedw.
P. strictum Brid.
Ptilium crista-castrensis (Hedw.) De Not.
Pylaisiella polyantha (Hedw.) Grout
P. selwynii (Kindb.) Crum, Steere & Anders.
Rhizomnium appalachianum Kop.
R. magnifolium (Horik.) Kop.
R. pseudopunctatum (Bruch & Schimp.) Kop.
R. punctatum (Hedw.) Kop.
Rhytidiadelphus triquetrus (Hedw.) Warnst.
Sanionia uncinata (Hedw.) Loeske
Schistidium apocarpum (Hedw.) Bruch & Schimp. in B.S.G.
S. rivulare (Brid.) Podp.
Sphagnum angutifolium (C. Jens. ex Russ.) C. Jens. in Tolf
S. capillifolium (Ehrh.) Hedw.
S. capillifolium var. tenerum (Sull. & Lesq. ex Sull.) Crum
S. centrale C. Jens. in H. Arnell & C. Jens.
S. cuspidatum Ehrh. ex Hoffm.
S. fallax (Klinggr.) Klinggr.
S. fuscum (Schimp.) Klinggr.
S. girgensohnii Russ.
S. magellanicum Brid.
S. majus (Russ.) C. Jens.
S. papillosum Lindb.
S. pulchrum (Lindb. ex Braithw.) Warnst.
S. quinquefarium (Lindb. ex Braithw.) Warnst.
S. riparium Aongstr.
S. rubellum Wils.
S. russowii Warnst.
S. squarrosum Crome
S. subsecundum Nees in Sturm
S. teres (Schimp.) Aongstr. in Hartm.
S. warnstorfii Russ.
S. wulfianum Girg.
Tetraphis pellucida Hedw.
Thuidium abietinum (Hedw.) B.S.G.
T. delicatulum (Hedw.) B.S.G.
T. delicatulum var. radicans (Kindb.) Crum, Steere & Anders.
T. recognitum (Hedw.) Lindb.
Tomenthypnum nitens (Lindb.) Broth.
Tortella fragilis (Drumm.) Limpr.
T. tortuosa (Hedw.) Limpr.
Ulota hutchinsiae (Sm.) Hamm.

Widespread-Northern Bias (77 taxa-29%)

Amphidium lapponicum (Hedw.) Schimp.
Andreaea rupestris Hedw.
Blindia acuta (Hedw.) B.S.G.
Brachythecium starkei (Brid.) B.S.G.
Bryum blindii B.S.G.
B. weigelii Spreng.
Buxbaumia aphylla Hedw.
Calliergon richardsonii (Mitt.) Kindb. ex Warnst.
C. stramineum (Brid.) Kindb.
Catoscopium nigritum (Hedw.) Brid.
Cinclidium stygium Sw.
Cnestrum schisti (Web. & Mohr) Hag.
Cynodontium strumiferum (Hedw.) Lindb.
C. tenellum (B.S.G.) Limpr.
Dichodontium pellucidum (Hedw.) Schimp.
Dicranella grevilleana (Brid.) Schimp.
D. schreberiana (Hedw.) Hilf. ex Crum & Anders.
Ditrichum flexicaule (Schwaegr.) Hampe
Drepanocladus revolvens (Sw.) Warnst.
Encalypta rhaptocarpa Schwaegr.
Eurhynchium riparioides (Hedw.) Rich.
Fontinalis antipyretica Hedw.
Grimmia affinis Hoppe & Hornsch. ex Hornsch.
G. teretinervis Limpr.
G. unicolor Hook. ex Grev.
Herzogiella striatella (Brid.) Iwats.
Heterocladium dimorphum (Brid.) B.S.G.

Homalia trichomanoides (Hedw.) B.S.G.
Hygrohypnum duriusculum (De Not.) Jamieson
H. eugyrium (B.S.G.) Loeske
H. ochraceum (Turn. ex Wils.) Loeske
Hylocomium umbratum (Hedw.) B.S.G.
Hypnum cupressiforme Hedw.
H. fertile Sendtn.
H. vaucheri Lesq.
Isopterygiopsis muelleriana (Schimp.) Iwats.
I. pulchella (Hedw.) Jaeg. & Sauerb.
Meesia triquetra (Richt.) Aongstr.
M. uliginosa Hedw.
Mnium thomsonii Schimp.
Neckera pennata var. tenera C. Mull.
Oxystegus tenuirostris (Hook. & Tayl.) A.J.E. Sm.
Paraleucobryum longifolium (Hedw.) Loeske
Paludella squarrosa (Hedw.) Brid.
Plagiomnium drummondii (Bruch. & Schimp.) Kop.
Plagiopus oederiana (Sw.) Crum & Anders.
Platydictya jungermannioides (Brid.) Crum
Pohlia elongata Hedw.
P. proligera (Kindb. ex Limpr.) Lindb. ex H. Arnell
Polytrichastrum alpinum (Hedw.) G.L. Sm.
Polytrichum formosum Hedw.
Pseudobryum cinclidioides (Hüb.) Kop.
Pseudoleskeella tectorum (Funck ex Brid.) Kindb. ex Broth.
Pseudotaxiphyllum elegans (Brid.) Iwats.
Pterigynandrum filiforme Hedw.
Pylaisiella intricata (Hedw.) Grout
Rhabdoweisia crispata (With.) Lindb.
Rhacomitrium canescens (Hedw.) Brid.
R. elongatum Ehrb. ex Frisv.
R. fasciculare (Hedw.) Brid.
R. heterostichum (Hedw.) Brid.
R. heterostichum var. microcarpon (Hedw.) Boul.
R. venustum Frisv.
Rhytidiadelphus subpinnatus (Lindb.) Kop.
Rhytidium rugosum (Hedw.) Kindb.
Saelania glaucescens (Hedw.) Bomanss. & Broth.
Schistidium agassizii Sull. & Lesq. ex Sull.
Schistostega pennata (Hedw.) Web. & Mohr
Scorpidium scorpioides (Hedw.) Limpr.
S. turgescens (T. Jens.) Loeske
Sphagnum compactum DC. ex Lam. & DC.
S. platyphyllum (Lindb. ex Braithw.) Sull. ex Warnst.
Splachnum ampullaceum Hedw.
Tetraplodon angustatus (Hedw.) B.S.G.
Tomenthypnum falcifolium (Ren. ex Nich.) Tuom.
Trematodon ambiguus (Hedw.) Hornsch.
Zygodon viridissimus var. rupestris Lindb. ex C.J. Hartm.

Widespread-Southern Bias (62 Taxa-23%)

Aloina brevirostris (Hook. & Grev.) Kindb.
Amblystegium fluviatile (Hedw.) B.S.G.
A. riparium (Hedw.) B.S.G.
A. serpens var. juratzkanum (Schimp.) Rau & Herv.
A. tenax (Hedw.) C. Jens.
A. varium (Hedw.) Lindb.
Anacamptodon splachnoides (Fröhl. ex Brid.) Brid.
Anomodon attenuatus (Hedw.) Hüb.
A. minor (Hedw.) Fürnr.
A. rostratus (Hedw.) Schimp.
Atrichum altecristatum (Ren. & Card.) Smyth & Smyth
A. crispum (James) Sull.
A. oerstedianum (C. Müll.) Mitt.
A. tenellum (Röhl.) B.S.G.
Aulacomnium androgynum (Hedw.) Schwaegr.
Barbula convoluta Hedw.
B. unguiculata Hedw.
Bartramia pomiformis Hedw.
Brachythecium acuminatum (Hedw.) Aust.
B. oxycladon (Brid.) Jaeg. & Sauerb.
B. reflexum (Starke ex Web. & Mohr) B.S.G.
B. rivulare B.S.G.
B. rutabulum (Hedw.) B.S.G.
B. turgidum (C.J. Hartm.) Kindb.
B. velutinum (Hedw.) B.S.G.
Brotherella recurvans (Michx.) Fleisch.

Bryhnia novae-angliae (Sull. & Lesq. ex Sull.) Grout
Bryum argenteum Hedw.
B. capillare Hedw.
B. uliginosum (Brid.) B.S.G.
Callicladium haldanianum (Grev.) Crum
Campylium radicale (P. Beauv.) Grout
Dicranella heteromalla (Hedw.) Schimp.
D. varia (Hedw.) Schimp.
Dicranum spurium Hedw.
D. viride (Sull. & Lesq. ex Sull.) Lindb.
Didymodon fallax (Hedw.) Zand.
D. fallax var. reflexus (Brid.) Zand.
D. rigidulus Hedw.
Ditrichum pusillum (Hedw.) Hampe
Encalypta procera Bruch
Fissidens adianthoides Hedw.
F. bryoides Hedw.
F. dubius P. Beauv.
Fontinalis dalecarlica Schimp. ex B.S.G.
Hypnum imponens Hedw.
Leskea polycarpa Hedw.
Leskeella nervosa (Brid.) Loeske
Leucobryum glaucum (Hedw.) Aongstr. ex Fr.
Lindbergia brachyptera (Mitt.) Kindb.
Orthotrichum anomalum Hedw.
O. sordidum Sull. & Lesq. ex Aust.
Philonotis marchica (Hedw.) Brid.
Plagiothecium cavifolium (Brid.) Iwats.
Polytrichum ohioense Ren & Card.
Rhodobryum ontariense (Kindb.) Kindb.
Sphagnum fimbriatum Wils. in Wils. & Hook. f.
S. palustre L.
Timmia megapolitana Hedw.
Tortula mucronifolia Schwaegr.
T. ruralis (Hedw.) Gaertn., Meyer & Scherb.
Ulota crispa (Hedw.) Brid.

SOUTHERN (90 taxa-18%)

Acaulon triquetrum (Spruce) C. Müll.
Amblystegium noterophilum (Sull. & Lesq. ex Sull.) Holz.
Anomodon viticulosus (Hedw.) Hook. & Tayl.
Aphanorhegma serratum (Hook. f. & Wils. ex Drumm.) Sull.
Astomum muhlenbergianum (Sw.) Grout
Atrichum angustatum (Brid.) B.S.G.
Aulacomnium heterostichum (Hedw.) B.S.G.
Brachythecium digastrum C. Müll. & Kindb. ex Mac. & Kindb.
Bruchia flexuosa (Sw. ex Schwaegr.) C. Müll.
Bryhnia graminicolor (Brid.) Grout
Bryoandersonia illecebra (Hedw.) Robins.
Bryum gemmiparum De Not.
Buxbaumia minakatae Okam.
Calliergonella cuspidata (Hedw.) Loeske
Cirriphyllum piliferum (Hedw.) Grout
Climacium americanum Brid.
Conardia compacta (C. Müll.) Robins.
Ctenidium malacodes Mitt.
Cyrto-hypnum minutulum (Hedw.) Buck & Crum
C. pygmaeum (Schimp. in B.S.G.) Buck & Crum
Desmatodon obtusifolius (Schwaegr.) Schimp.
D. porteri James ex Aust.
Dicranum fulvum Hook.
D. muehlenbeckii B.S.G.
Didymodon tophaceus (Brid.) Lisa
Diphyscium foliosum (Hedw.) Mohr
Ditrichum pallidum (Hedw.) Hampe
Drepanocladus aduncus var. kneiffii (B.S.G.) Mönk.
Drummondia prorepens (Hedw.) Britt.
Entodon cladorrhizans (Hedw.) C. Müll.
E. seductrix (Hedw.) C. Müll.
Ephemerum cohaerens (Hedw.) Hampe
E. crassinervium (Schwaegr.) Hampe
E. serratum (Hedw.) Hampe
E. spinulosum Bruch & Schimp. ex Schimp.
Eurhynchium hians (Hedw.) Sande Lac.
Fissidens bushii (Card. & Thér.) Card. & Thér.
F. exilis Hedw.
F. fontanus (B.-Pyl.) Steud.
F. grandifrons Brid.
F. obtusifolius Wils.
F. taxifolius Hedw.
Forsstroemia trichomitria (Hedw.) Lindb.
Funaria flavicans Michx.
Grimmia anodon B.S.G.
G. olneyi Sull.
G. pilifera P. Beauv.
G. plagiopodia Hedw.
G. pulvinata (Hedw.) Sm.

Gyroweisia tenuis (Hedw.) Schimp.
Haplohymenium triste (Ces. ex De Not.) Kindb.
Helodium paludosum (Sull.) Aust.
Homomallium adnatum (Hedw.) Broth.
Hyophila involuta (Hook.) Jaeg. & Sauerb.
Hypnum curvifolium Hedw.
Leskea gracilescens Hedw.
L. obscura Hedw.
Leucodon brachypus var. andrewsianus Crum & Anders.
Mnium stellare Hedw.
Orthotrichum ohioense Sull. & Lesq. ex Aust.
O. pumilum Sw.
O. stellatum Brid.
O. strangulatum P. Beauv.
Palustriella commutata (Brid.) Ochyra
Phascum cuspidatum Hedw.
P. floerkeanum Web. & Mohr
Physcomitriella patens (Hedw.) B.S.G.
Physcomitrium pyriforme (Hedw.) Brid.
Plagiomnium rostratum (Schrad.) Kop.
Plagiothecium latebricola B.S.G.
Platydictya confervoides (Brid.) Crum
Pleuridium subulatum (Hedw.) Rabenh.
Pottia davalliana (Sm. ex Drake) C. Jens.
P. truncata (Hedw.) Fürnr. ex B.S.G.
P. truncata var. major (Web. & Mohr) B.S.G.
Pterygoneurum ovatum (Hedw.) Dix.
Ptychomitrium incurvum (Schwaegr.) Spruce
Pylaisiadelpha tenuirostris (Bruch & Schimp. ex Sull.) Buck
Seligeria campylopoda Kindb. ex Mac. & Kindb.
S. donniana (Sm.) C. Müll.
Steerecleus serrulatus (Hedw.) Robins.
Taxiphyllum deplanatum (Bruch & Schimp. ex Sull.) Fleisch.
Thelia asprella Sull.
T. hirtella (Hedw.) Sull.
Tortella humilis (Hedw.) Jenn.
T. inclinata (Hedw. f.) Limpr.
Tortula muralis Hedw.
T. papillosa Wils. ex Spruce
Trematodon longicollis Michx.
Weissia controversa Hedw.

NORTHERN (40 taxa-8%)

Aulacomnium acuminatum (Lindb. & H. Arnell) Kindb.
A. turgidum (Wahlenb.) Schwaegr.
Bryum purpurascens (R.Br.) B.S.G.
Cinclidium latifolium Lindb.
Desmatodon cernuus (Hüb.) B.S.G.
D. heimii var. arctica (Lindb.) Crum
Dichelyma falcatum (Hedw.) Myr.
Dicranella cerviculata (Hedw.) Schimp.
Dicranum acutifolium (Lindb. & H. Arnell) C. Jens. ex Weinm.
D. brevifolium (Lindb.) Lindb.
D. elongatum Schleich. ex Schwaegr.
D. fragilifolium Lindb.
D. groenlandicum Brid.
D. leioneuron Kindb.
D. majus Sm.
D. spadiceum Zett.
Distichium inclinatum (Hedw.) B.S.G.
Drepanocladus brevifolius (Lindb.) Warnst.
D. pseudostramineus (C. Müll.) Roth
D. revolvens var. intermedius (Lindb. ex C. Hartm.) Grout
D. tundrae (H. Arnell) Loeske
Hypnum hamulosum Schimp. in B.S.G.
Loeskypnum badium (C.J. Hartm.) Paul
Myrinia pulvinata (Wahlenb.) Schimp.
Oncophorus virens (Hedw.) Brid.
Orthothecium chryseum (Schwaegr. ex Schultes) B.S.G.
O. strictum Lor.
Pohlia filiformis (Dicks.) Andr.
P. sphagnicola (B.S.G.) Lindb. & H. Arnell
Rhacomitrium lanuginosum (Hedw.) Brid.
Rhizomnium gracile Kop.
Sphagnum annulatum H. Lindb. ex Warnst.
Sphagnum jensenii H. Lindb.
S. lindbergii Schimp. in Lindb.
S. obtusum Warnst.
S. tenellum (Brid.) Bory
Splachnum luteum Hedw.
S. rubrum Hedw.
S. vasculosum Hedw.
Tetraplodon mnioides (Hedw.) B.S.G.

EASTERN (15 taxa-3%)

Anomodon rugelii (C. Müll.) Keissl.
Bryum muehlenbeckii B.S.G.
Calliergon trifarium (Web. & Mohr) Kindb.
Dichelyma capillaceum (With.) Myr.
D. pallescens B.S.G.
Ditrichum lineare (Sw.) Lindb.
Kindbergia praelonga (Hedw.) Ochyra
Platylomella lescurii (Sull. in Gray) Andr.
Pogonatum pensilvanicum (Hedw.) P. Beauv.
Pohlia annotina (Hedw.) Lindb.
Pseudotaxiphyllum distichaceum (Mitt.) Iwats.
Rauiella scita (P. Beauv.) Reim.
Rhacomitrium aciculare (Hedw.) Brid.
Thamnobryum alleghaniense (C. Müll.) Nieuwl.
Ulota coarctata (P. Beauv.) Hamm.

WESTERN (8 taxa-2%)

Bryum pallens (Brid.) Sw. ex Röhl.
Coscinodon cribrosus (Hedw.) Spruce
Grimmia torquata Hornsch. ex Grev.
Mielichhoferia mielichhoferiana (Funck ex Hook.) Loeske
Hygrohypnum alpestre (Hedw.) Loeske
Isothecium alopecuroides (Dubois) Isov.
I. myosuroides Brid.
Myurella tenerrima (Brid.) Lindb.

UNKNOWN (68 taxa-14%)

Acaulon muticum var. rufescens (Jaeg.) Crum
Amblyodon dealbatus (Hedw.) B.S.G.
Amphidium mougeotii (B.S.G.) Schimp.
Andreaea crassinervia Bruch
Andreaea rothii Web. & Mohr
Atrichum undulatum (Hedw.) P. Beauv.
Brachythecium albicans (Hedw.) B.S.G.
B. calcareum Kindb.
Bryum capillare var. flaccidum (Brid.) B.S.G.
B. cyclophyllum (Schwaegr.) B.S.G.
B. dichotomum Hedw.
B. knowltonii Barnes
B. miniatum Lesq.
B. violaceum Crundw. & Nyh.
Campylium chrysophyllum var. brevifolium (Ren. & Card.) Grout
Dichelyma uncinatum Mitt.
Dicranella crispa (Hedw.) Schimp.
Dicranoweisia crispula (Hedw.) Lindb. ex Milde
Didymodon rigidulus var. gracilis (Schleich. ex Hook. & Grev.) Zand.
Drepanocladus sendtneri (Schimp. ex H. Müll.) Warnst.
Eucladium verticillatum (Brid.) B.S.G.
Fontinalis howellii Ren. & Card.
F. sphagnifolia (C. Müll.) Wijk & Marg.
F. sullivantii Lindb.
Grimmia anomala Hampe ex Schimp.
G. hermannii Crum
Gyroweisia reflexa (Brid.) Schimp.
Hygrohypnum subeugyrium (Ren. & Card.) Broth.
Hylocomium brevirostre (Brid.) B.S.G.
Hypnum pallescens var. protuberans (Brid.) Aust.
H. plicatulum (Lindb.) Jaeg. & Sauerb.
H. recurvatum (Lindb. & H. Arnell) Kindb.
Jaffueliobryum wrightii (Sull. in Gray) Thér.
Leucodon julaceus (Hedw.) Sull.
Meesia longiseta Hedw.
Mnium hornum Hedw.
Neomacounia nitida (Lindb.) Irel. - **Endemic**
Orthothecium intricatum (C.J. Hartm.) B.S.G.
Orthotrichum alpestre Hornsch. ex B.S.G.
O. cupulatum Brid.
O. pallens Bruch ex Brid.
O. speciosum Nees ex Sturm
Oxystegus spiralis (Grout) Crum & Anders.
Philonotis fontana var. americana (Dism.) Flow. ex Crum
P. fontana var. caespitosa (Jur.) Schimp.
P. fontana var. pumila (Turn.) Brid.
Physcomitrium immersum Sull.
Platydictya minutissima (Sull. & Lesq. in Sull.) Crum

Pogonatum dentatum (Brid.) Brid.
P. urnigerum (Hedw.) P. Beauv.
Pohlia andalusica (Höhn.) Broth.
P. atropurpurea (Wahlenb. in Fürnr.) H. Lindb.
P. bulbifera (Warnst.) Warnst.
P. melanodon (Brid.) J. Shaw
Pseudoleskeella sibirica (H. Arnell) P. Wils. & Norris
Seligeria brevifolia (Lindb.) Lindb.
S. calcarea (Hedw.) B.S.G.
S. recurvata (Hedw.) B.S.G.
Sphagnum contortum Schultz
S. lescurii Sull. in Gray
S. nitidum Warnst.
S. subnitens Russ. & Warnst. in Warnst.
Tayloria serrata (Hedw.) B.S.G.
Tetrodontium brownianum (Dicks.) Schwaegr.
Tortula cainii Crum & Anders. - **Endemic**
T. norvegica (Web.) Wahlenb. ex Lindb.
Trichodon cylindricus (Hedw.) Schimp.
Ulota curvifolia (Wahlenb.) Lilj.

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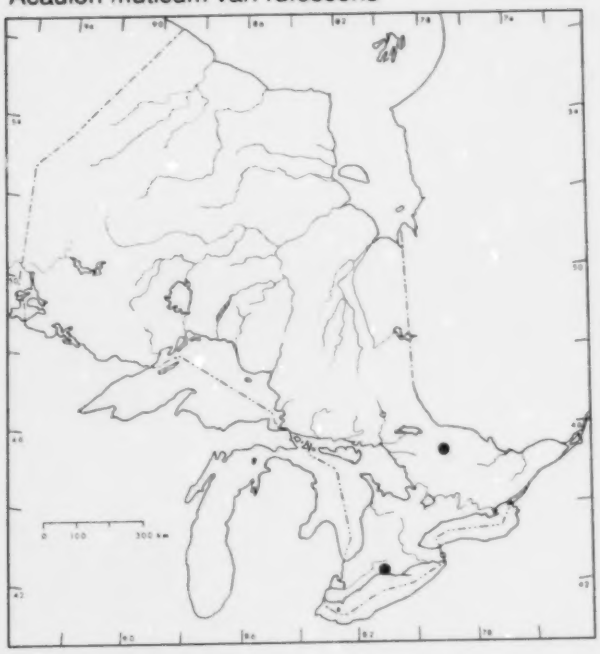
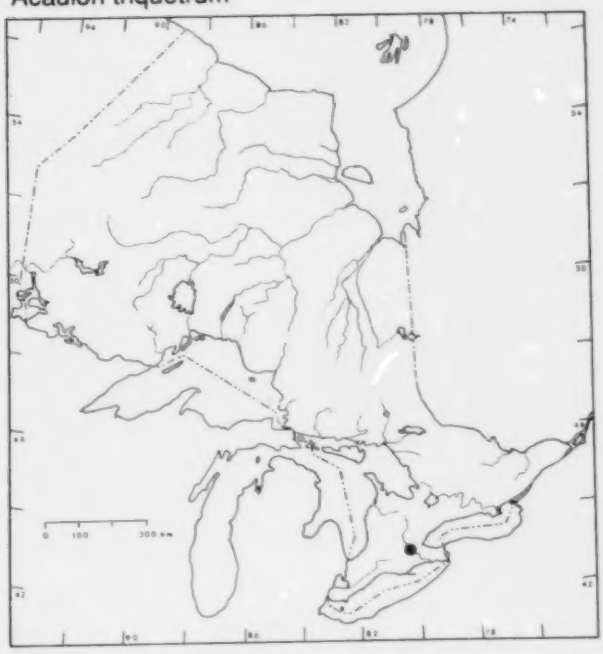
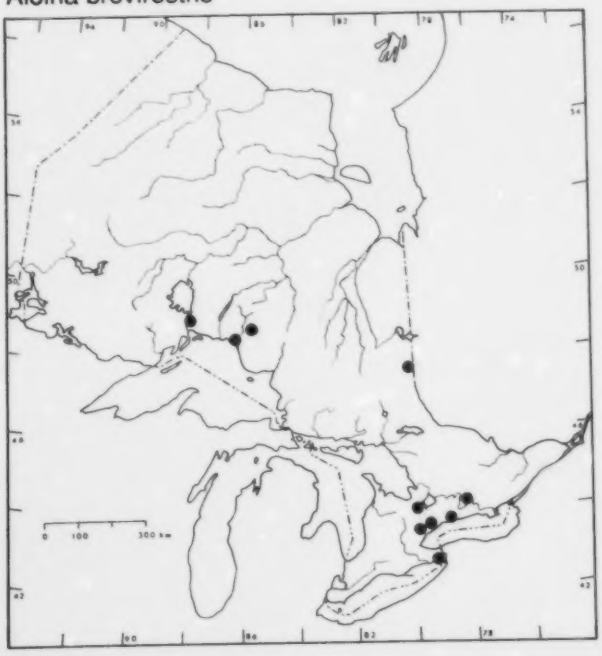
Acaulon muticum var. rufescens



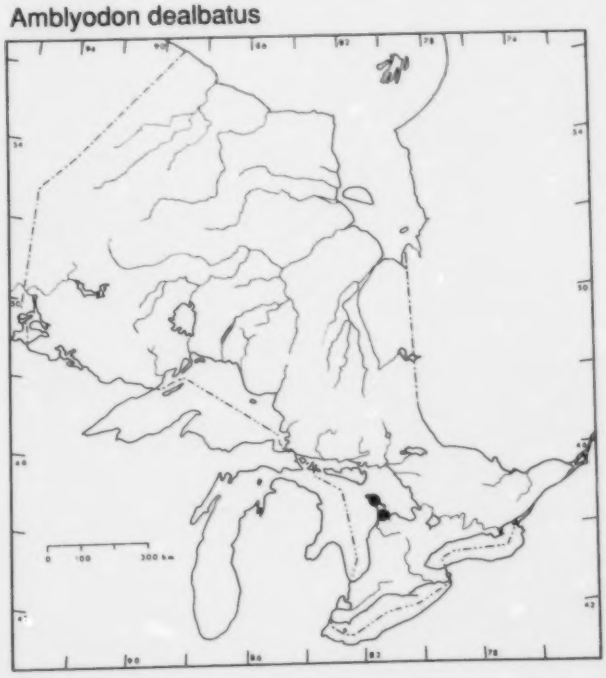
Acaulon triquetrum



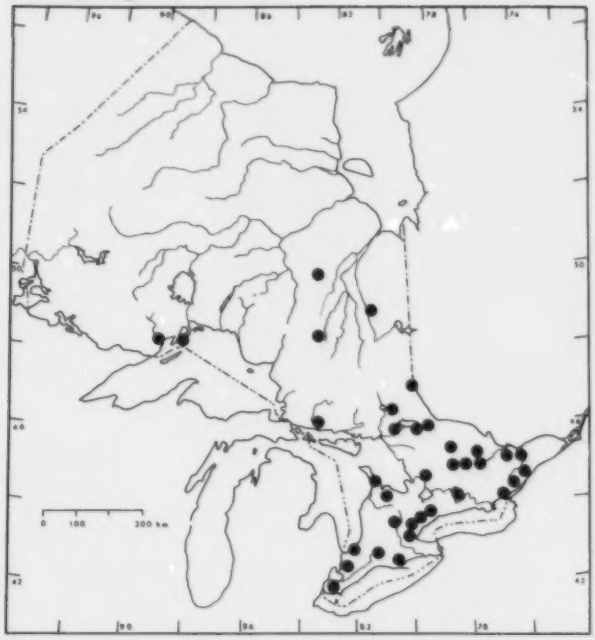
Aloina brevirostris



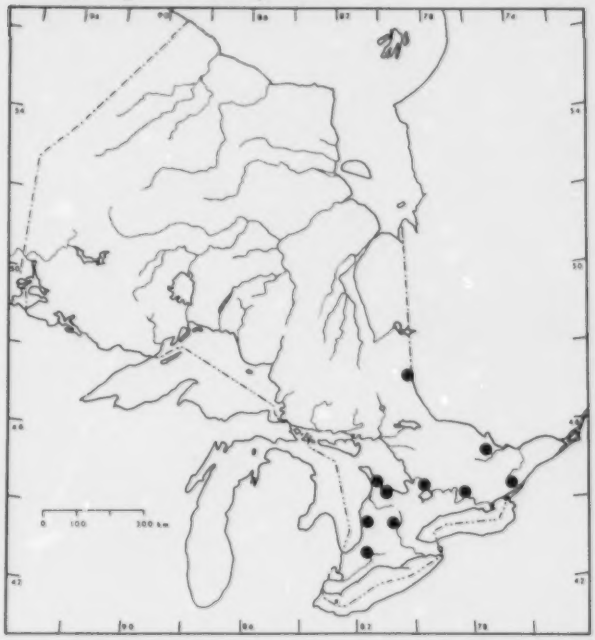
Amblyodon dealbatus



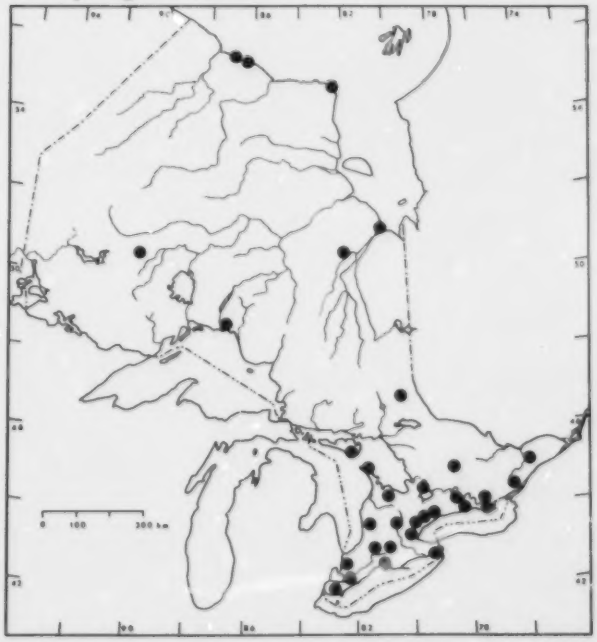
Amblystegium fluviatile



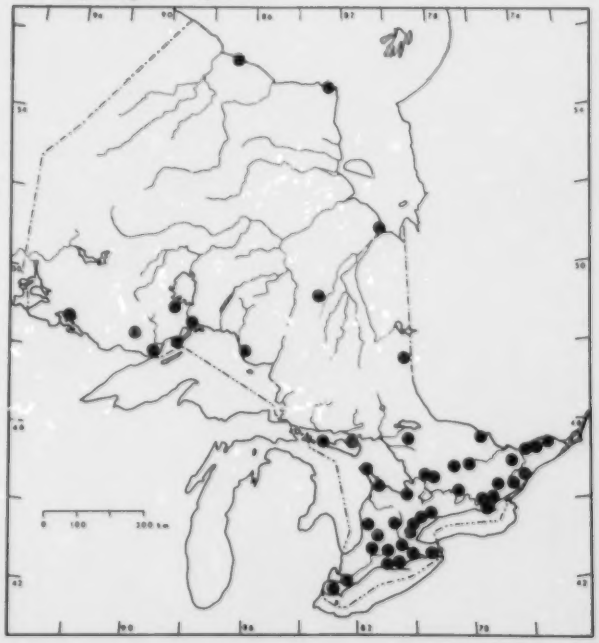
Amblystegium noterophilum



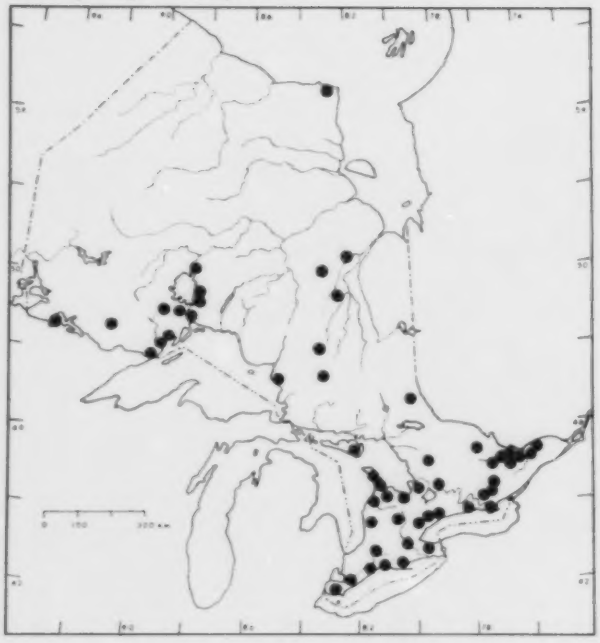
Amblystegium humile



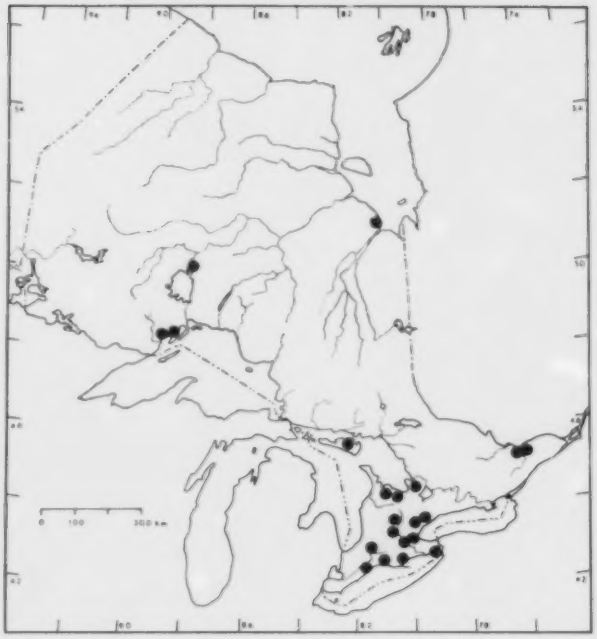
Amblystegium riparium



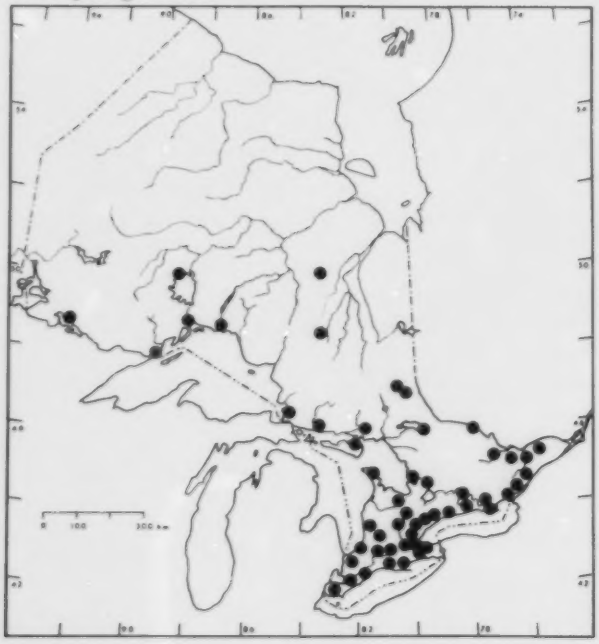
Amblystegium serpens



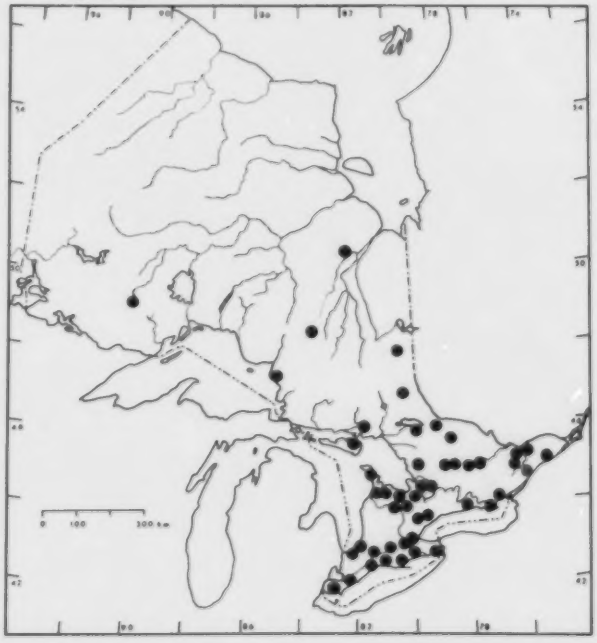
Amblystegium serpens var. juratzkanum



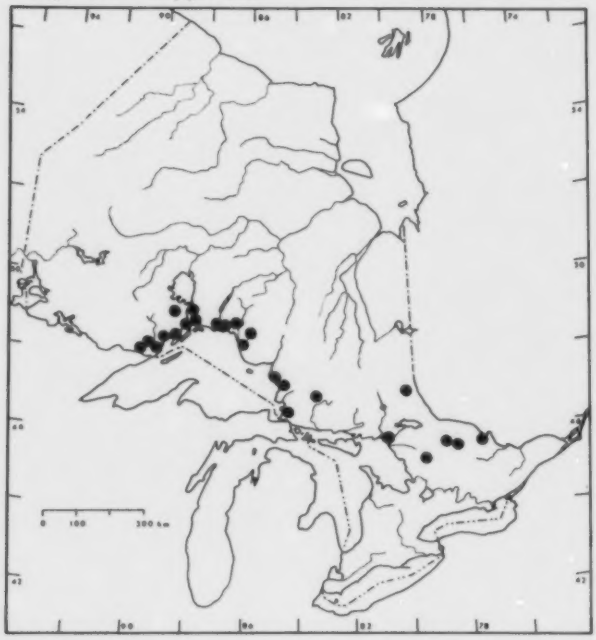
Amblystegium tenax



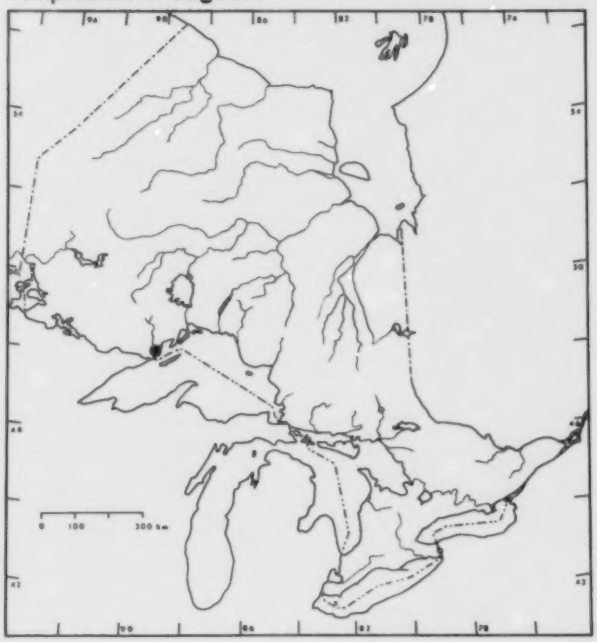
Amblystegium varium



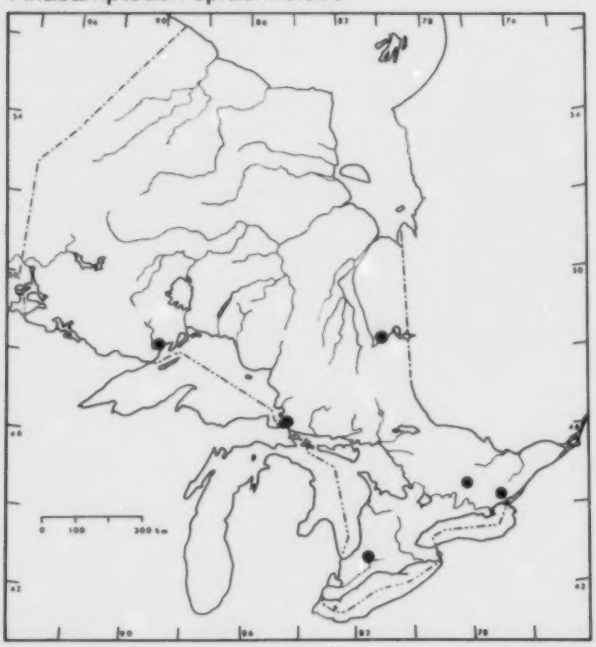
Amphidium lapponicum



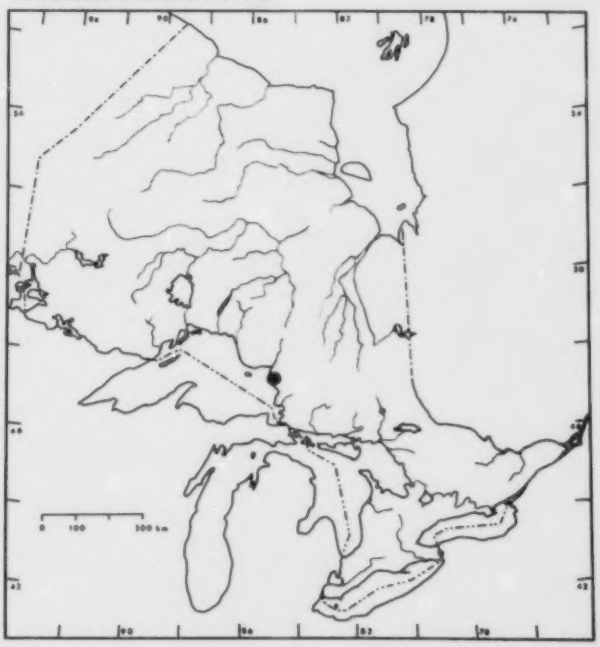
Amphidium mougeotii



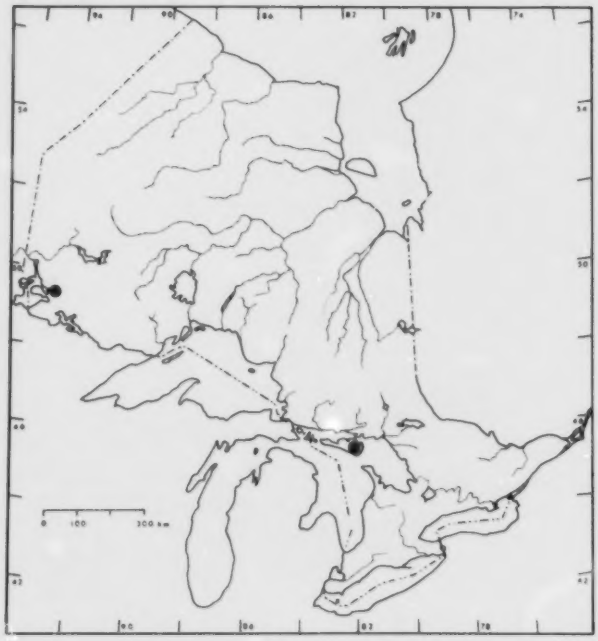
Anacamptodon splachnoides



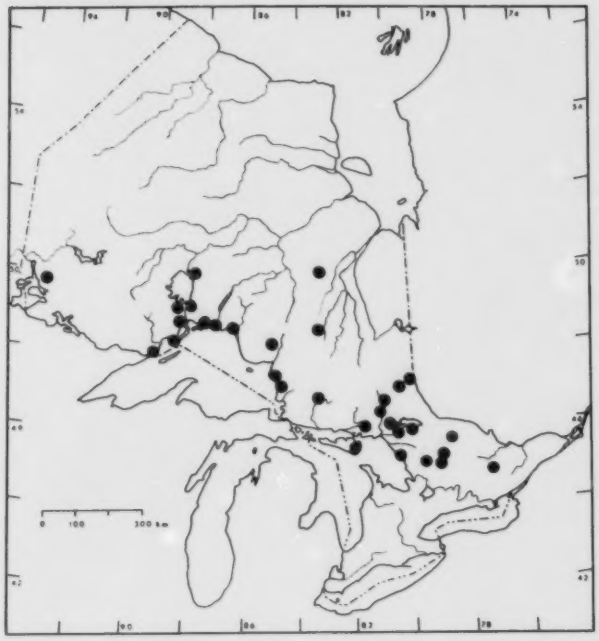
Andreaea crassinervia



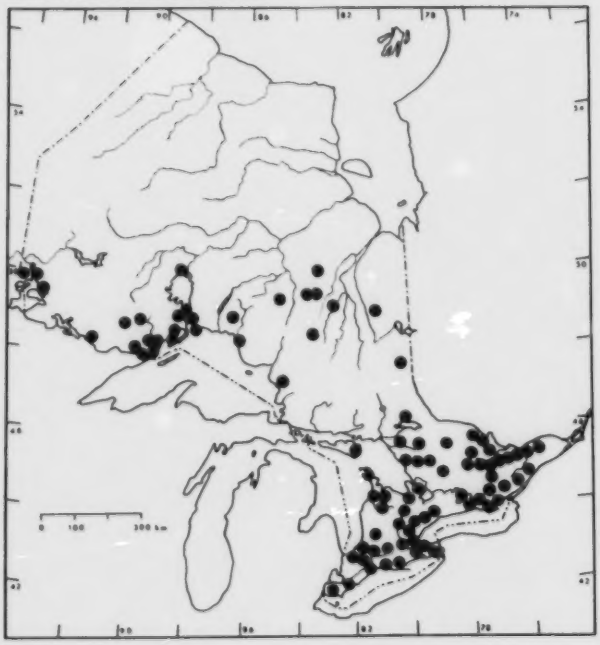
Andreaea rothii



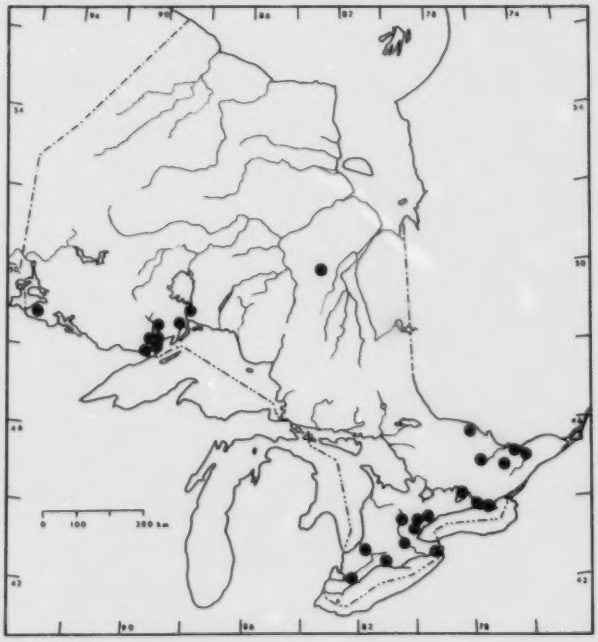
Andreaea rupestris



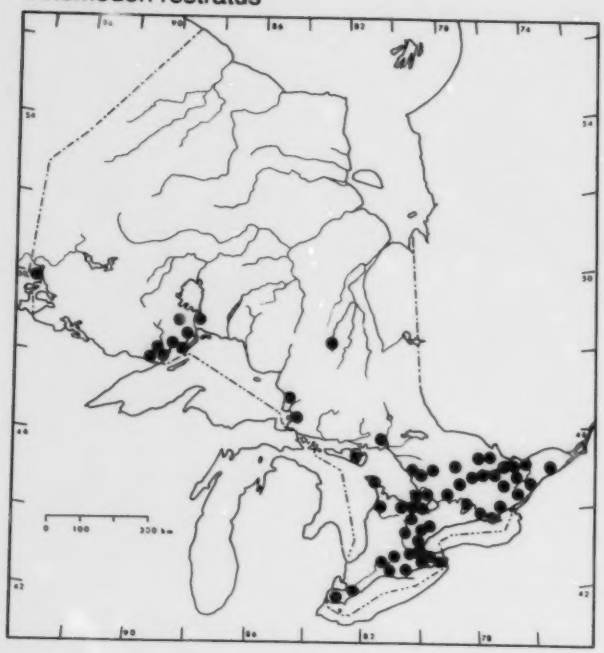
Anomodon attenuatus



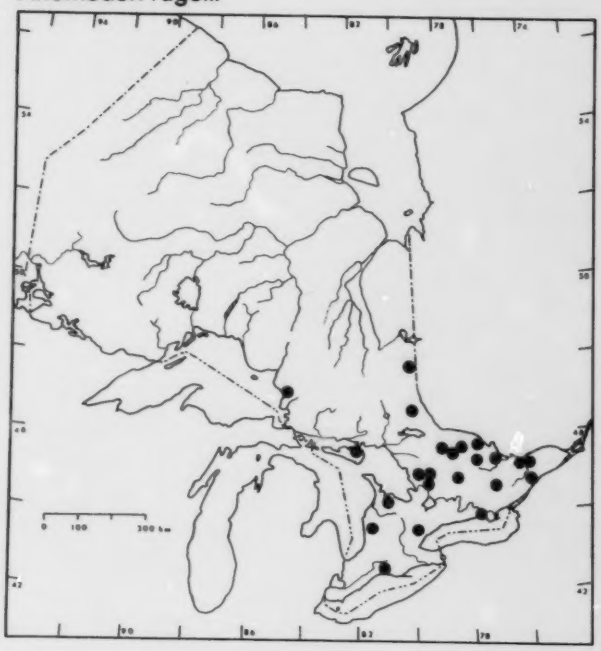
Anomodon minor



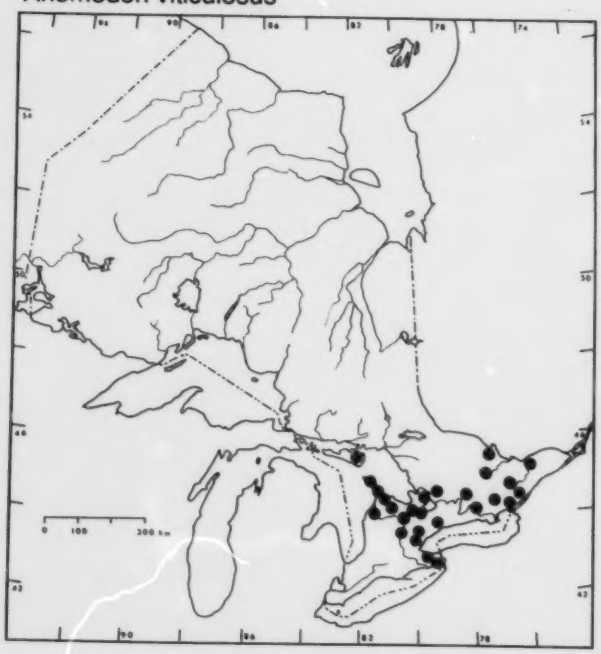
Anomodon rostratus



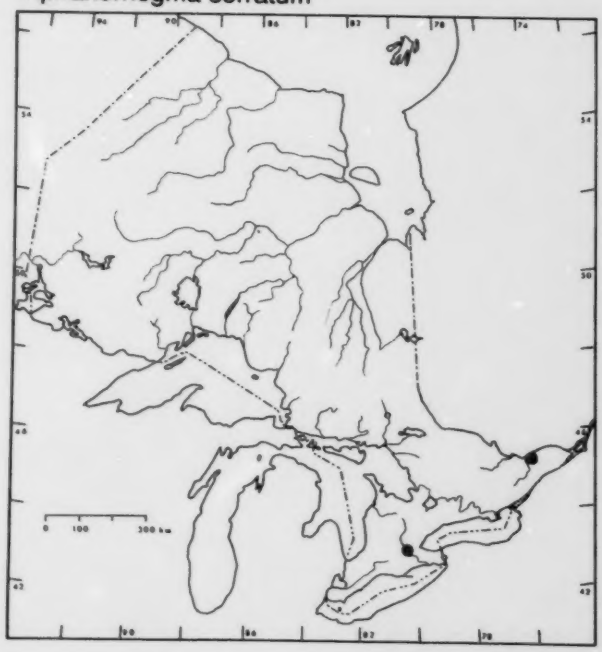
Anomodon rugelii



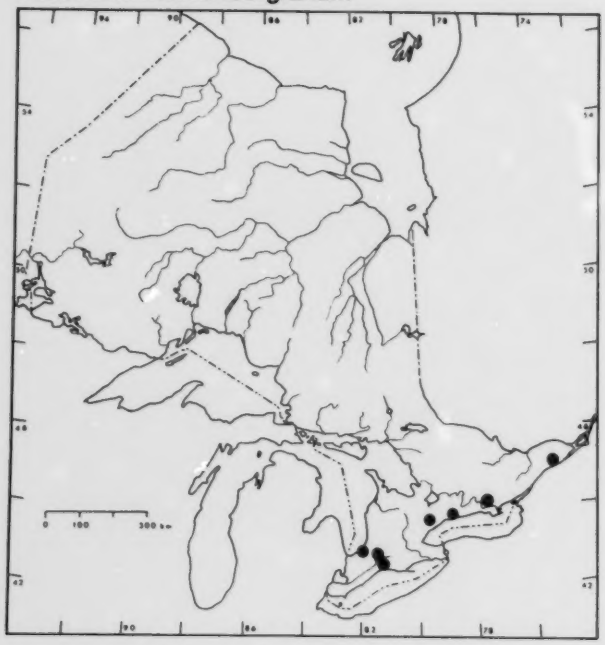
Anomodon viticulosus



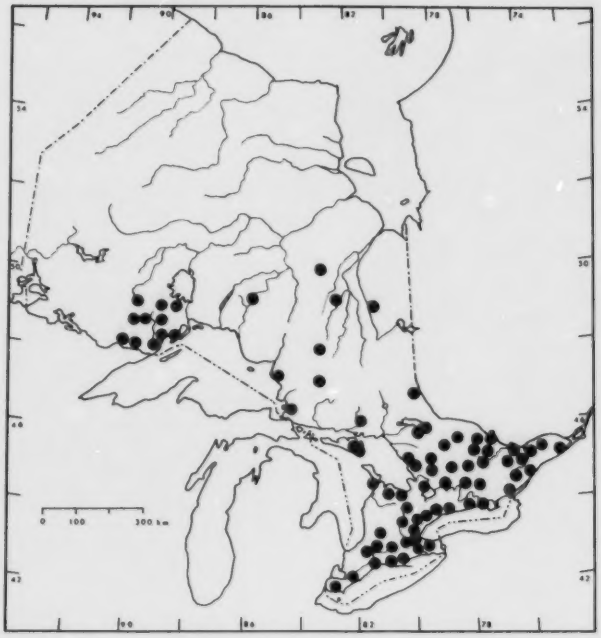
Aphanorhegma serratum



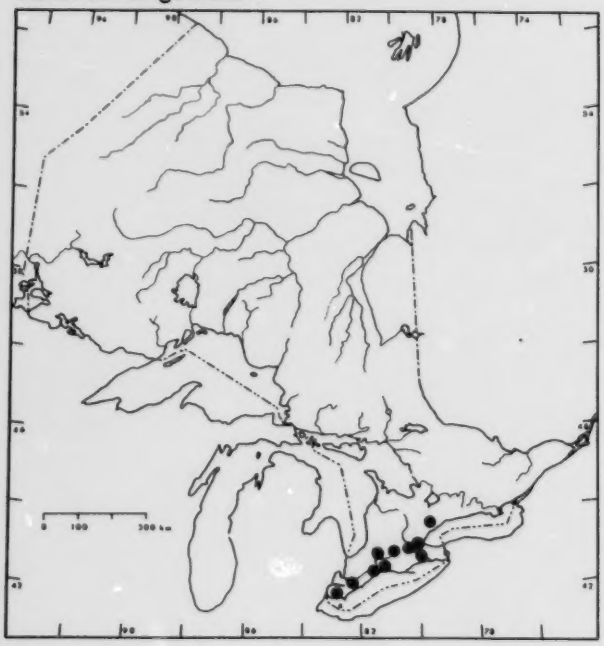
Astomum muhlenbergianum



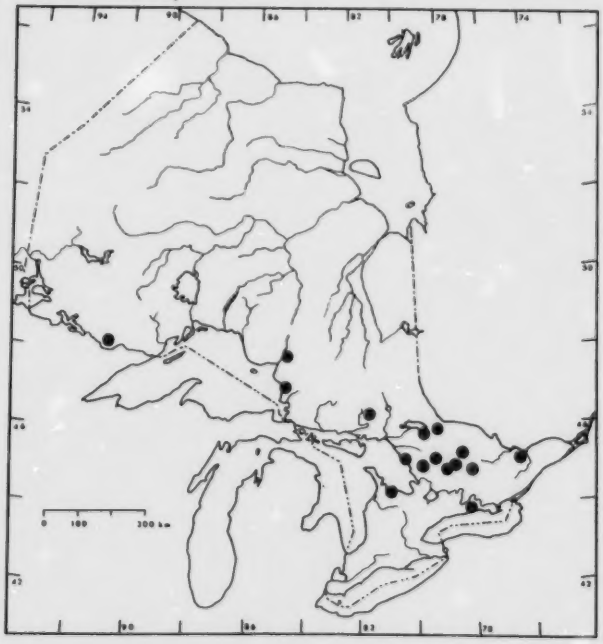
Atrichum altecristatum



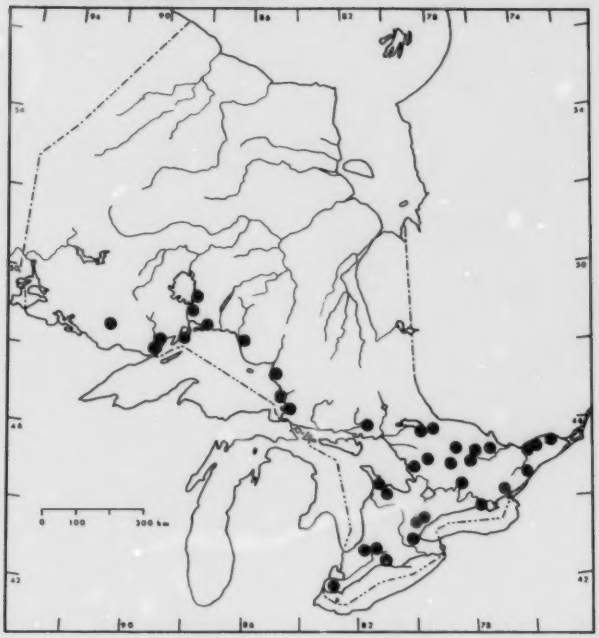
Atrichum angustatum



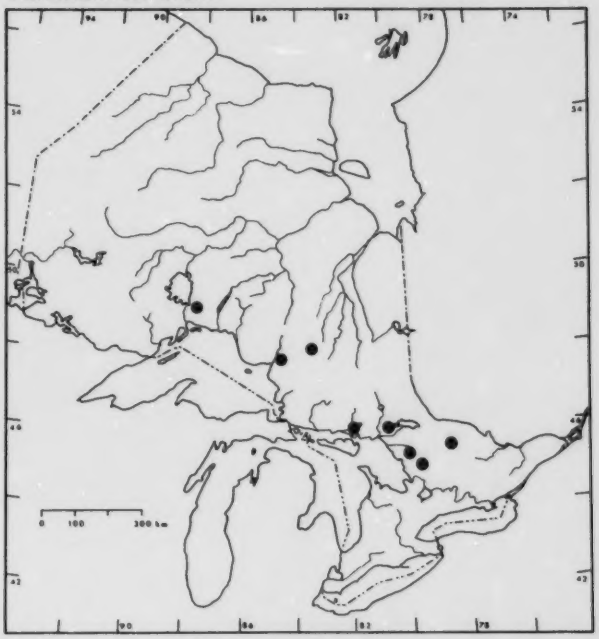
Atrichum crispum



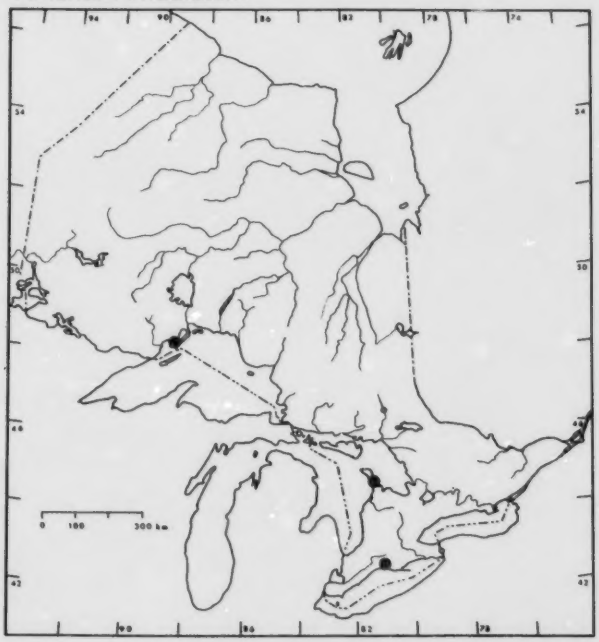
Atrichum oerstedianum



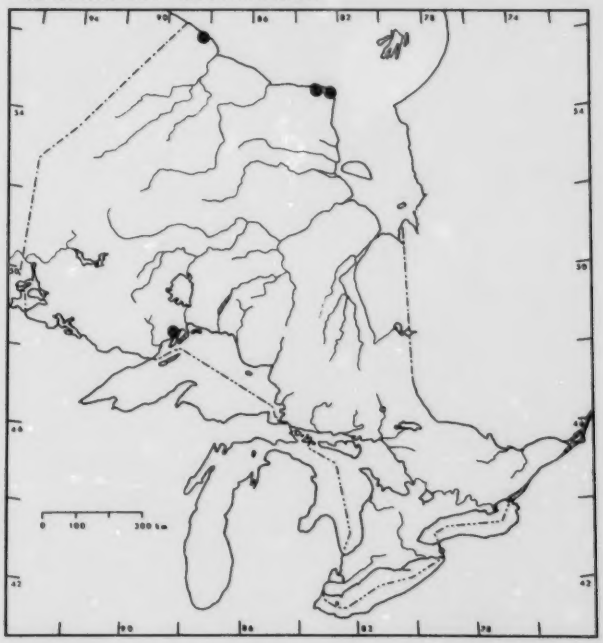
Atrichum tenellum



Atrichum undulatum



Aulacomnium acuminatum



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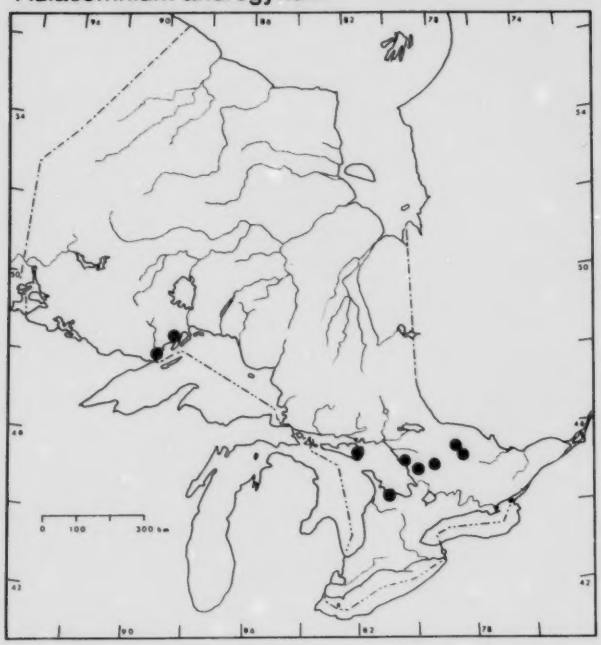
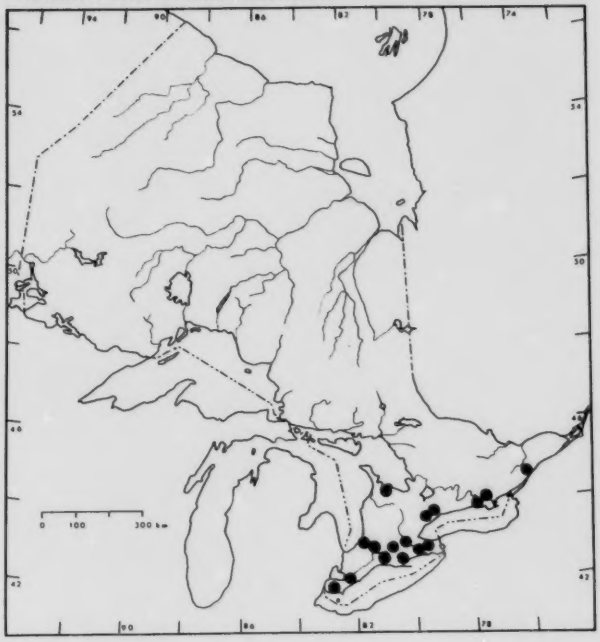
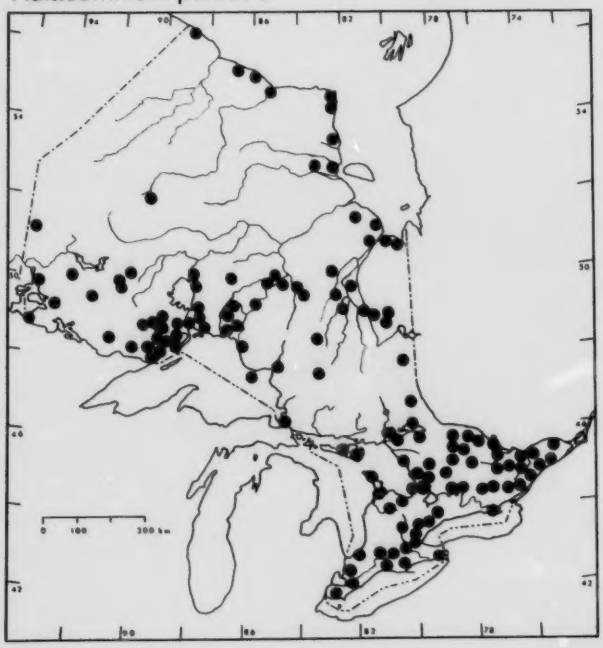


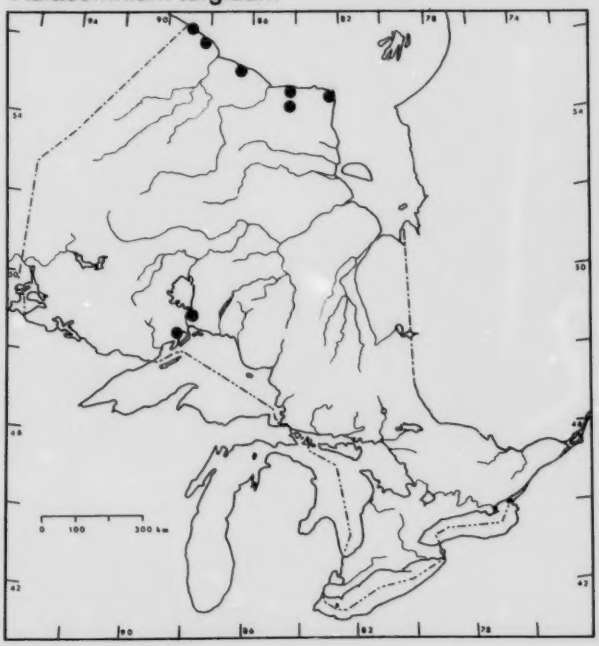
Aulacomnium heterostichum



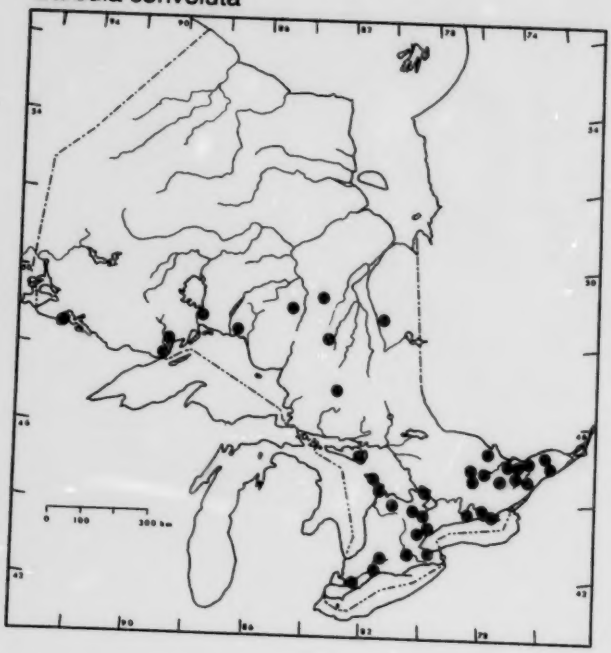
Aulacomnium palustre



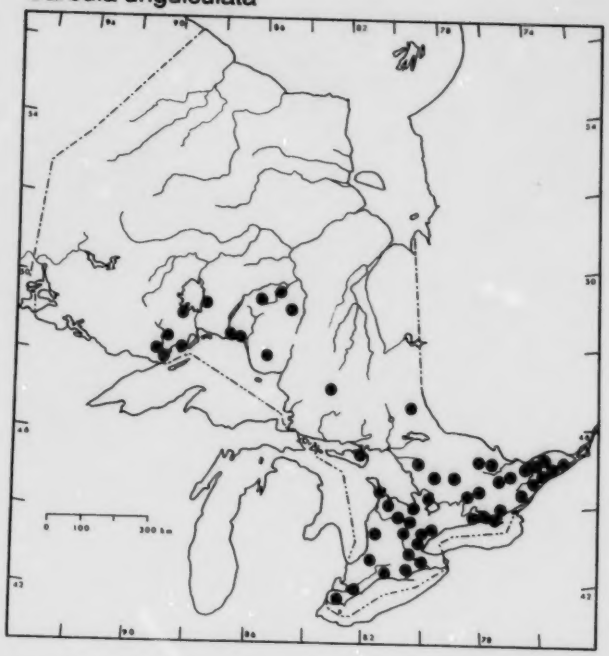
Aulacomnium turgidum



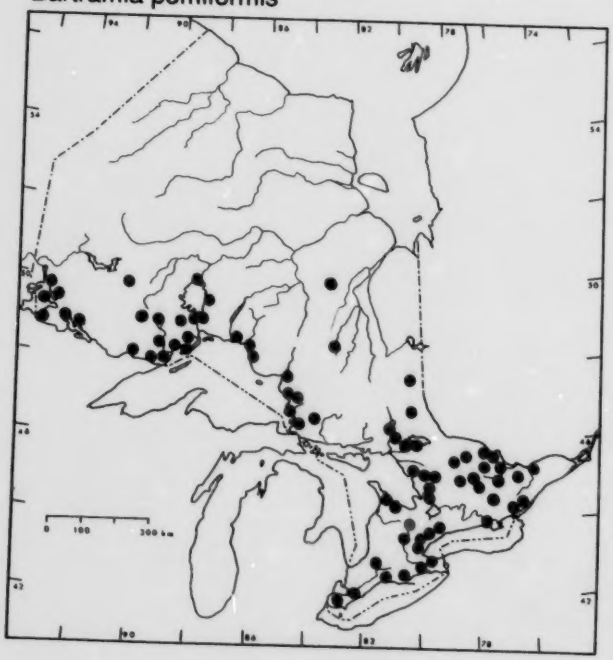
Barbula convoluta



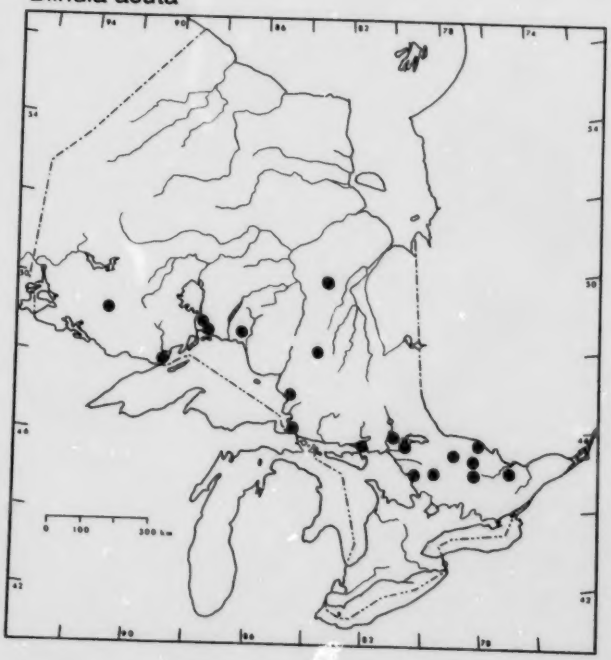
Barbula unguiculata



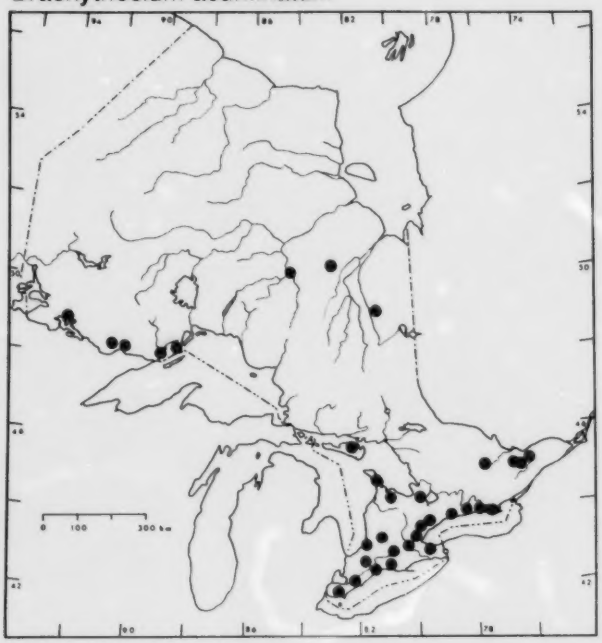
Bartramia pomiformis



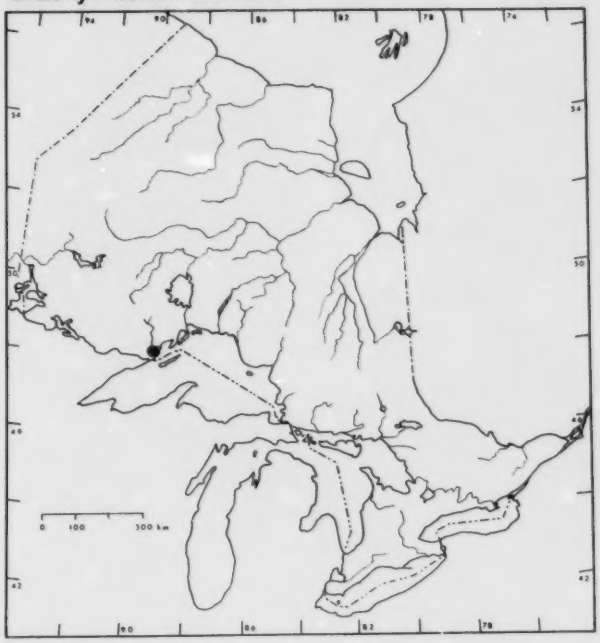
Blindia acuta



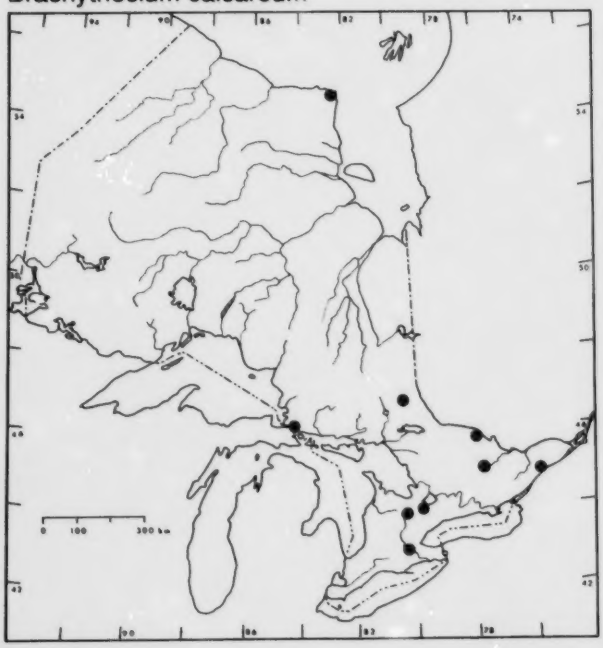
Brachythecium acuminatum



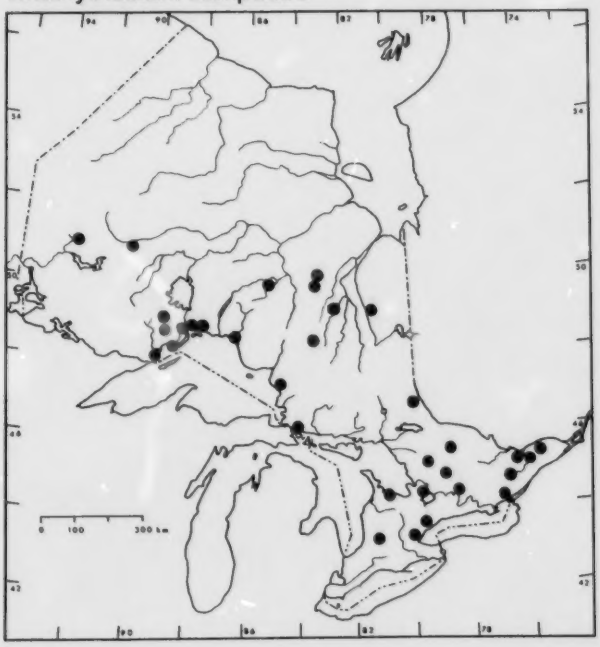
Brachythecium albicans



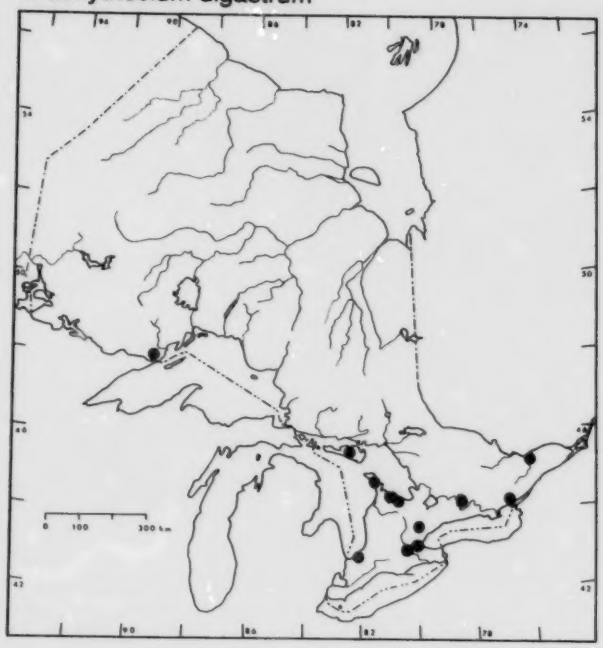
Brachythecium calcareum



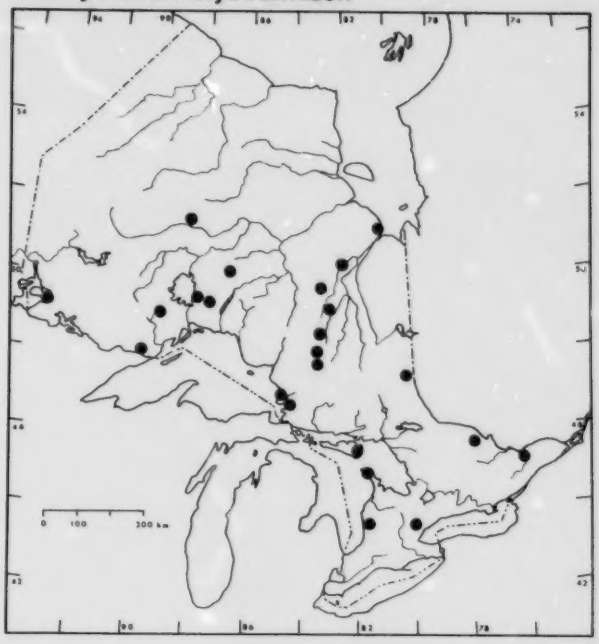
Brachythecium campestre



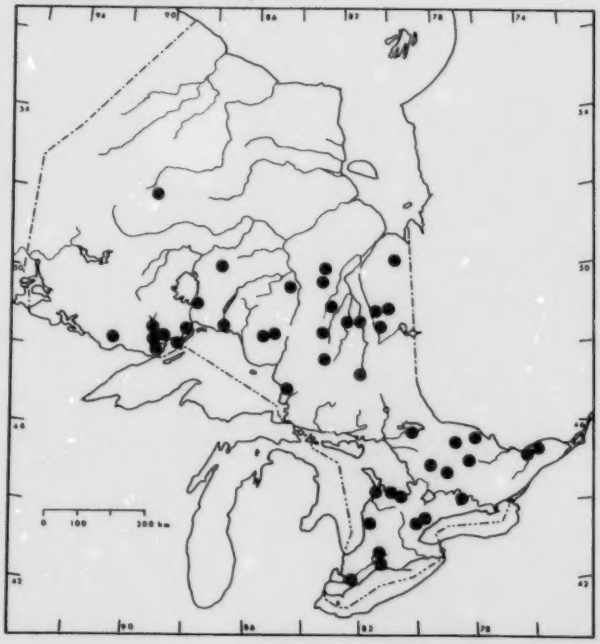
Brachythecium digastrum



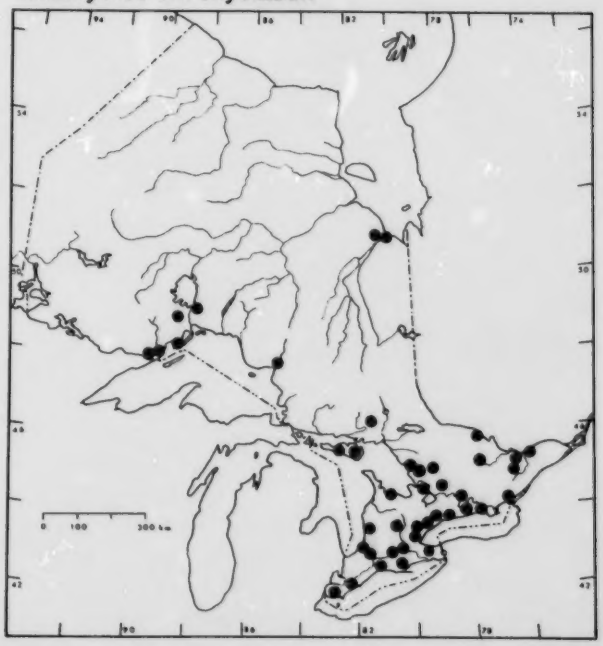
Brachythecium erythrorrhizon



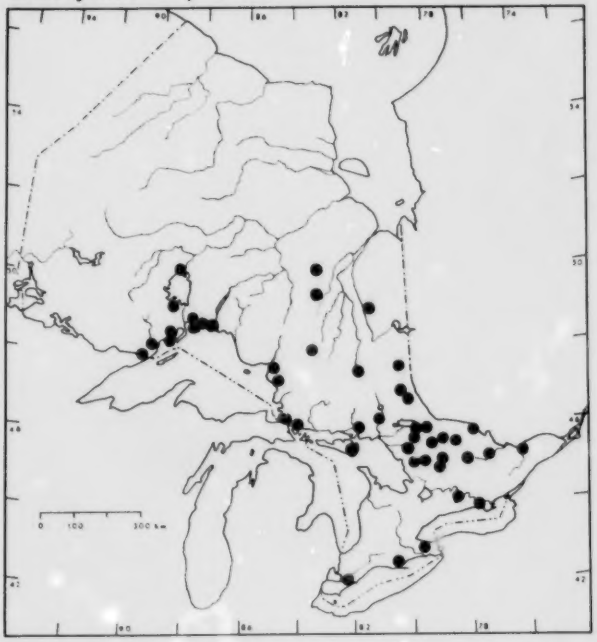
Brachythecium oedipodium



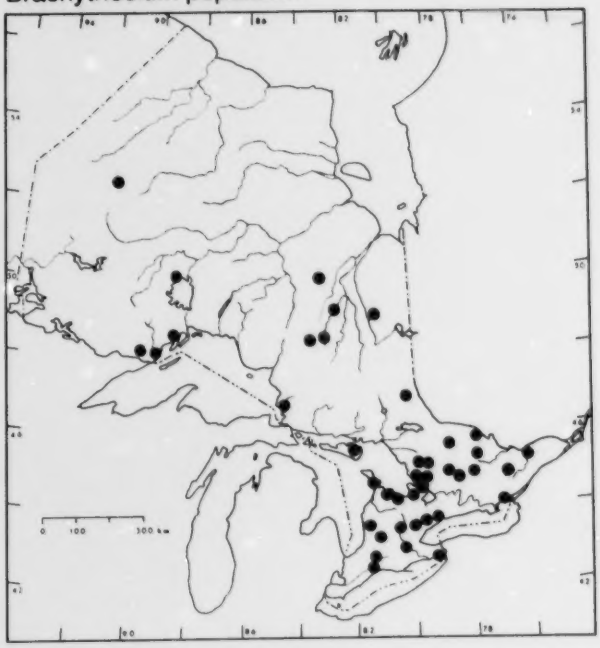
Brachythecium oxycladon



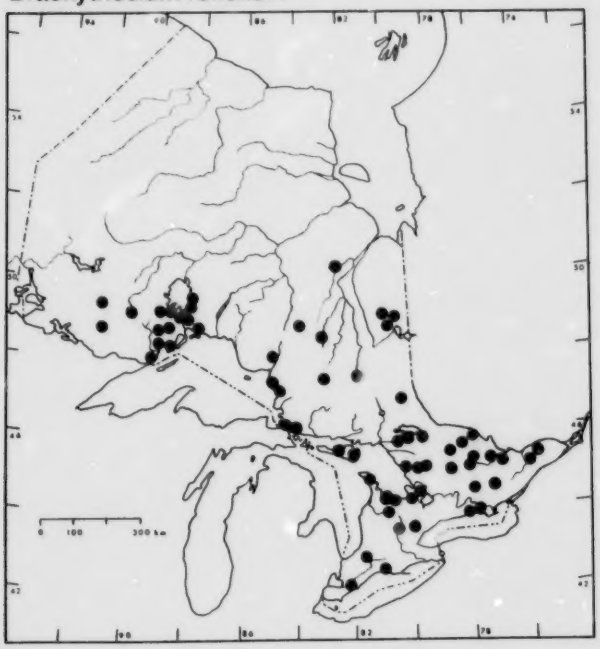
Brachythecium plumosum



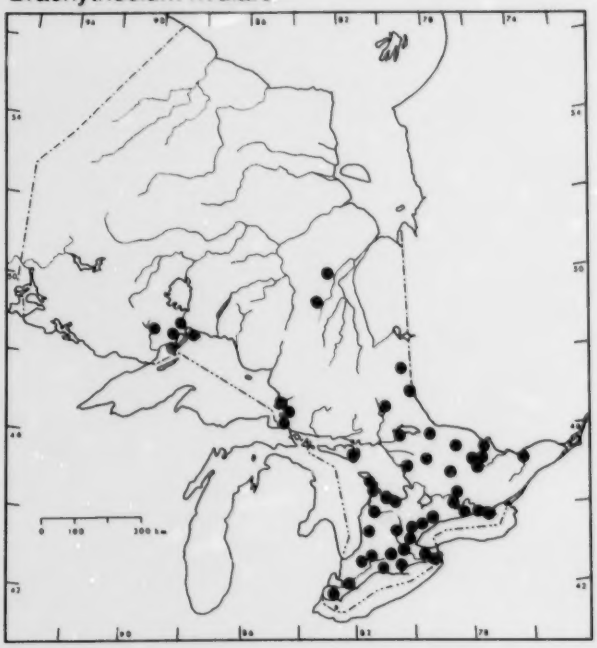
Brachythecium populeum



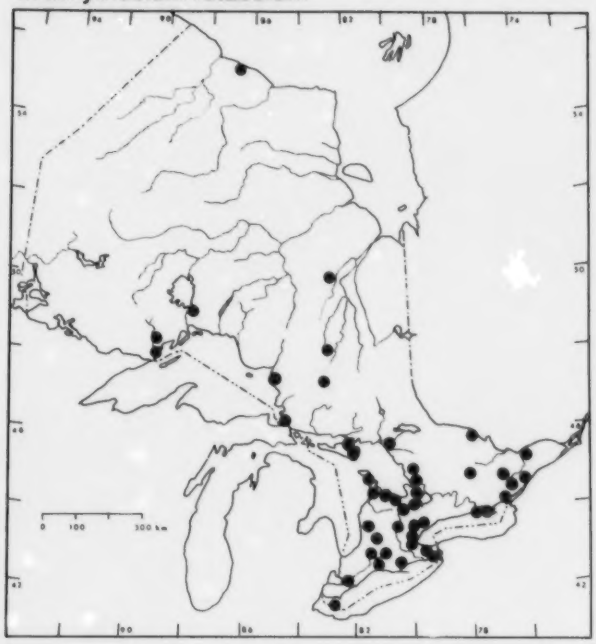
Brachythecium reflexum



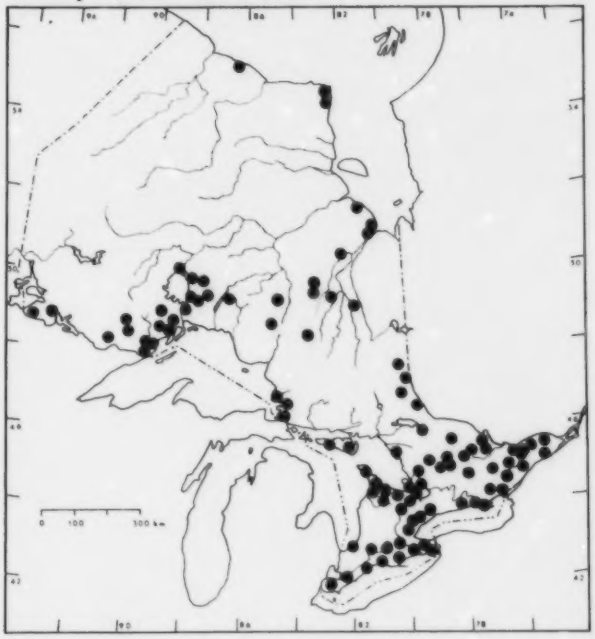
Brachythecium rivulare



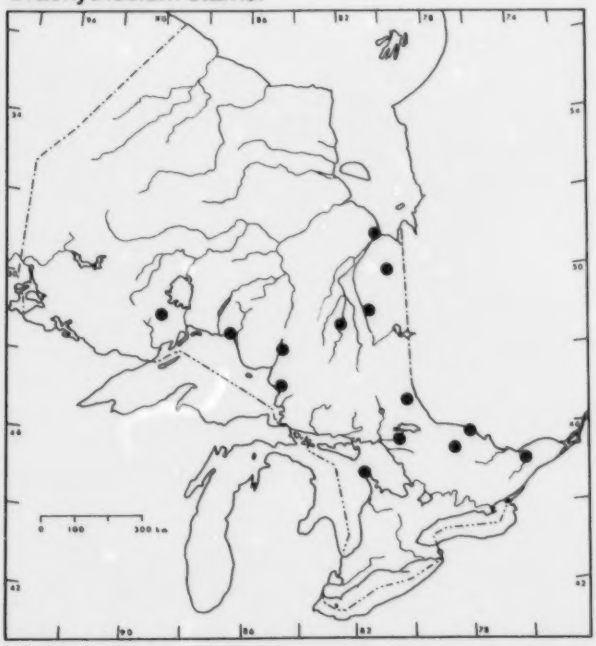
Brachythecium rutabulum



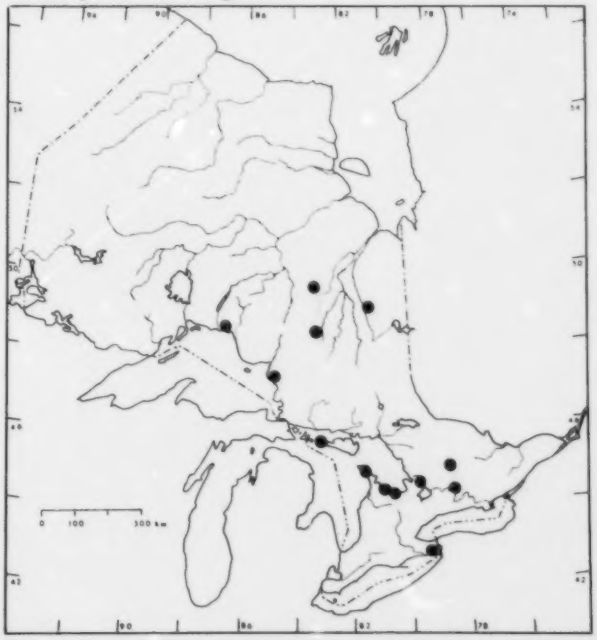
Brachythecium salebrosum



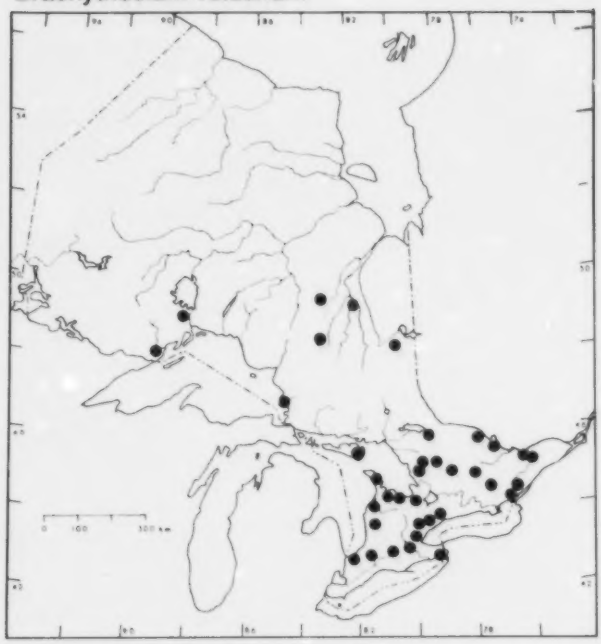
Brachythecium starkei



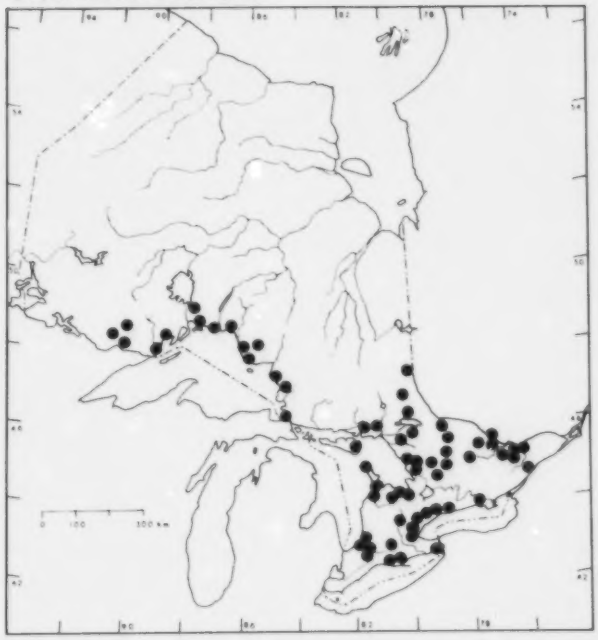
Brachythecium turgidum



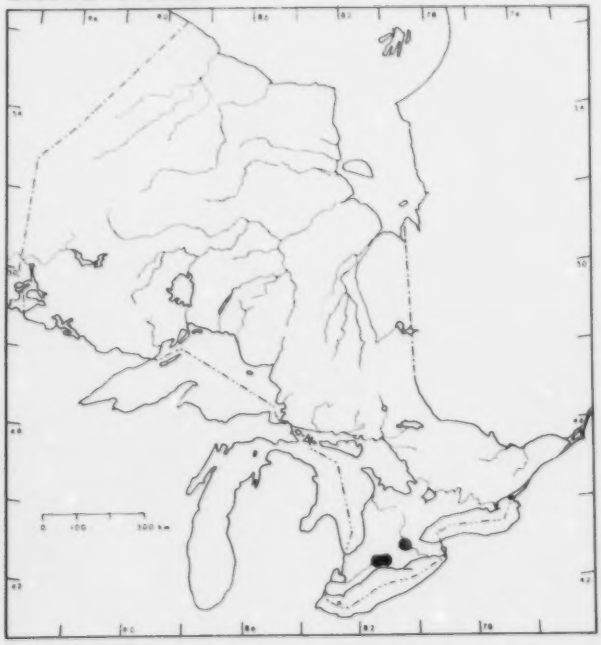
Brachythecium velutinum



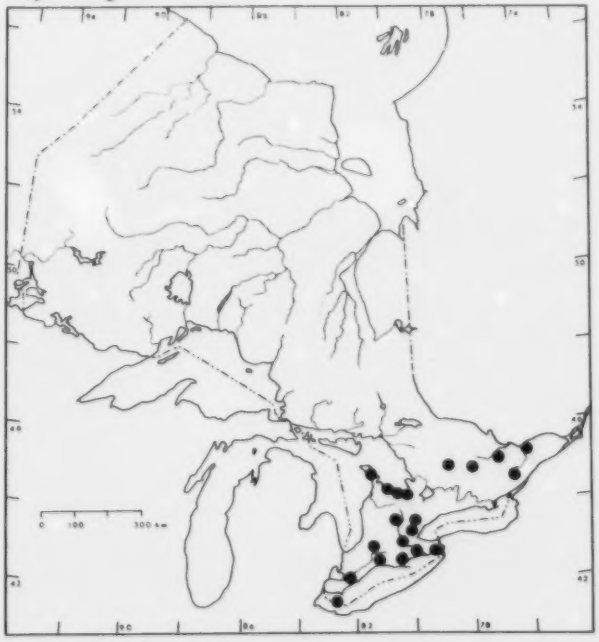
Brotherella recurvans



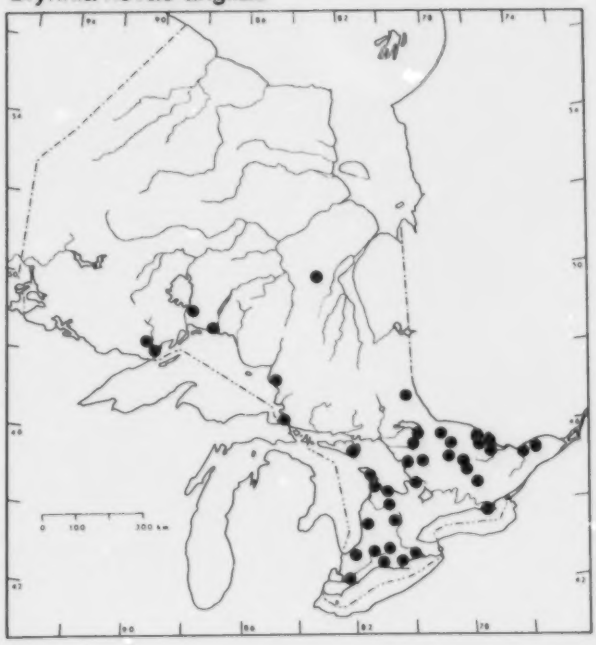
Bruchia flexuosa



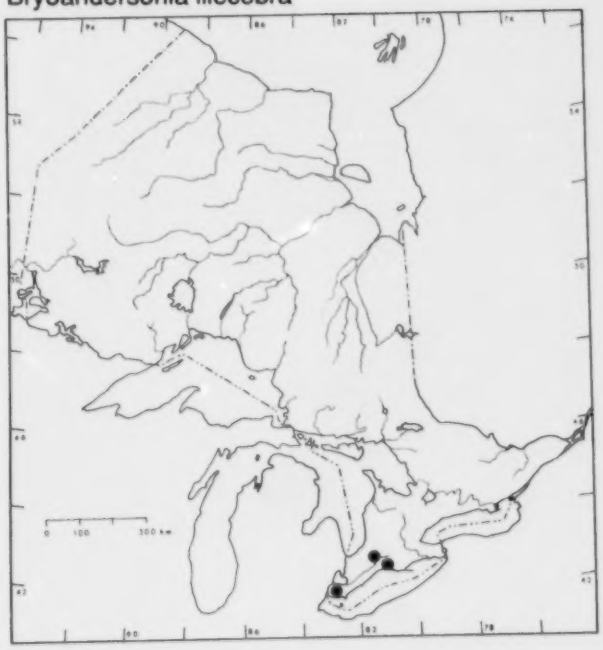
Bryhnia graminicolor



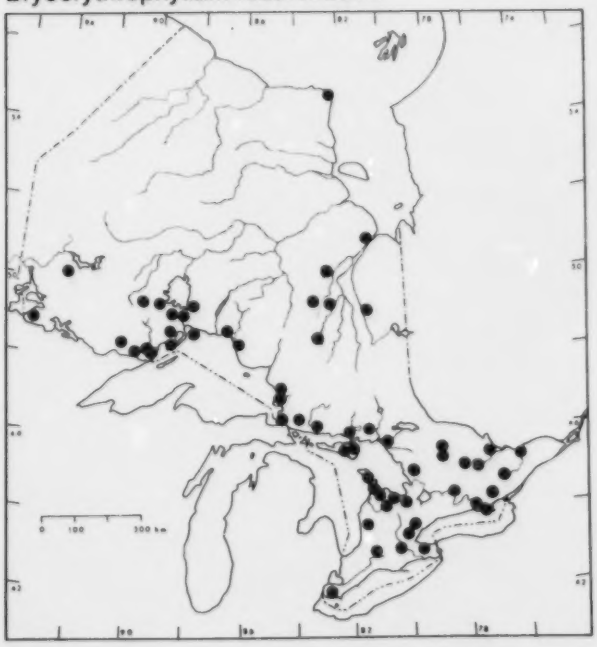
Bryhnia novae-angliae



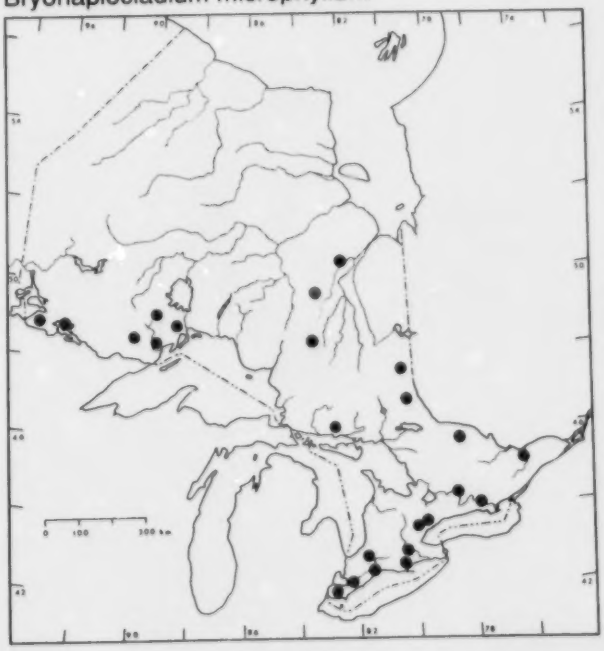
Bryoandersonia illecebra



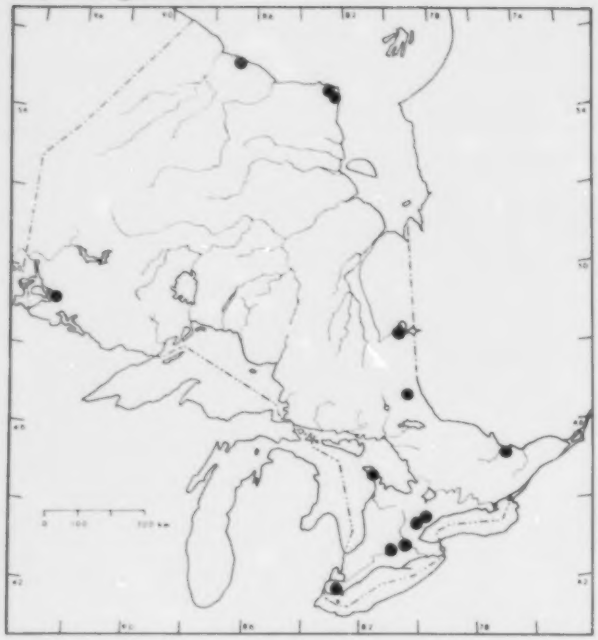
Bryoerythrophyllum recurvirostre



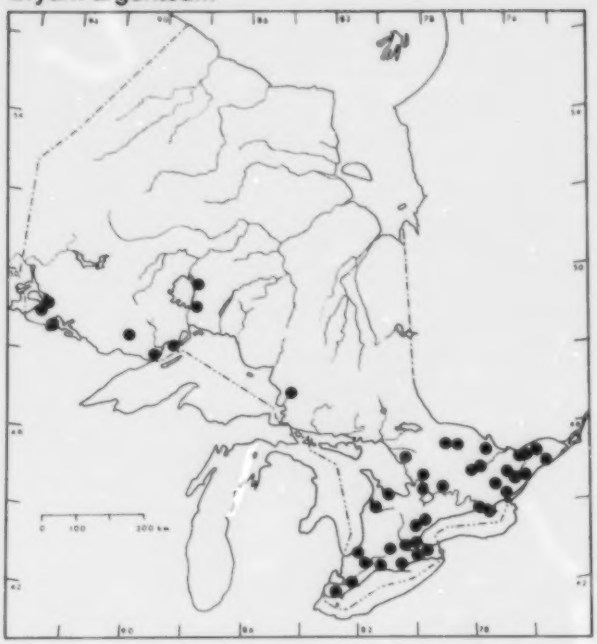
Bryohaplocladium microphyllum



Bryum algovicum

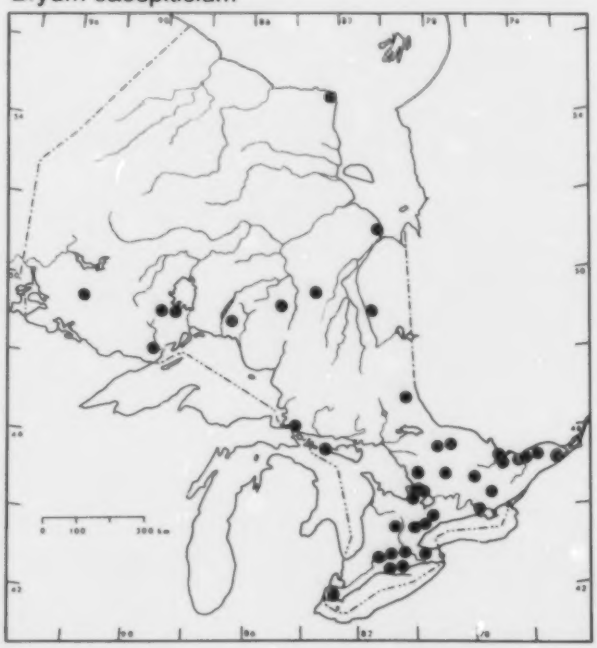


Bryum argenteum

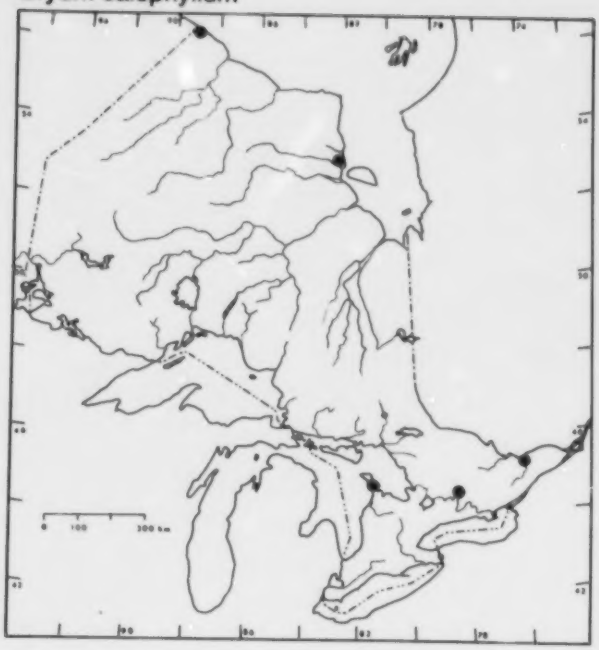


Bryum blindii

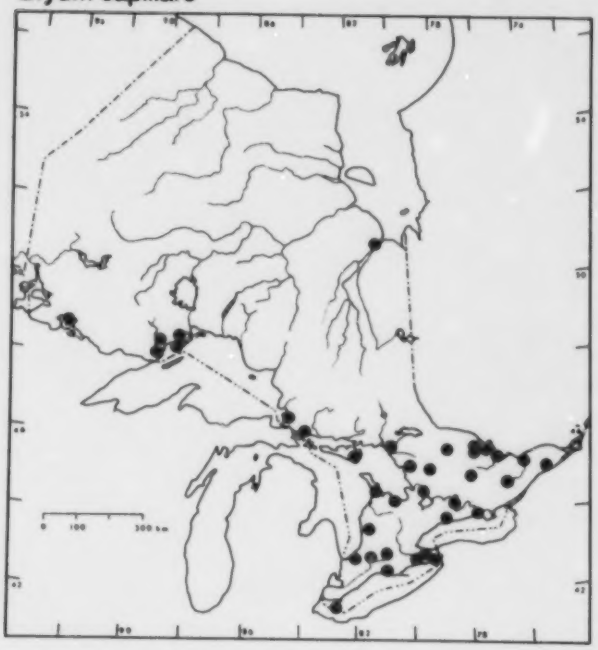
Bryum caespiticium



Bryum calophyllum



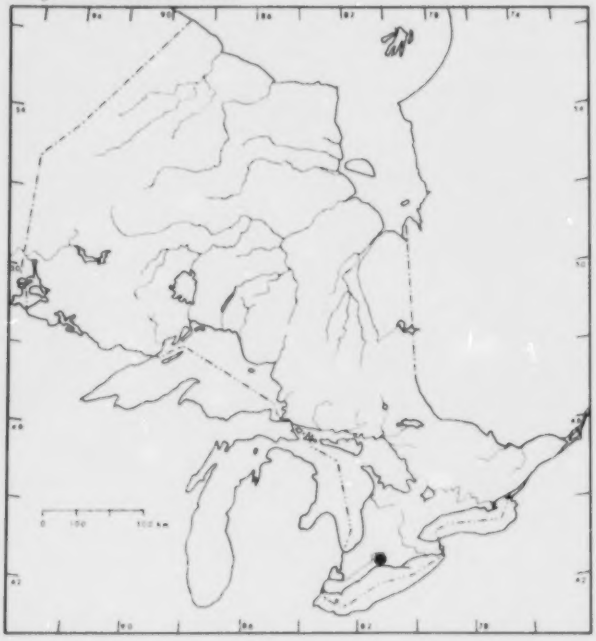
Bryum capillare



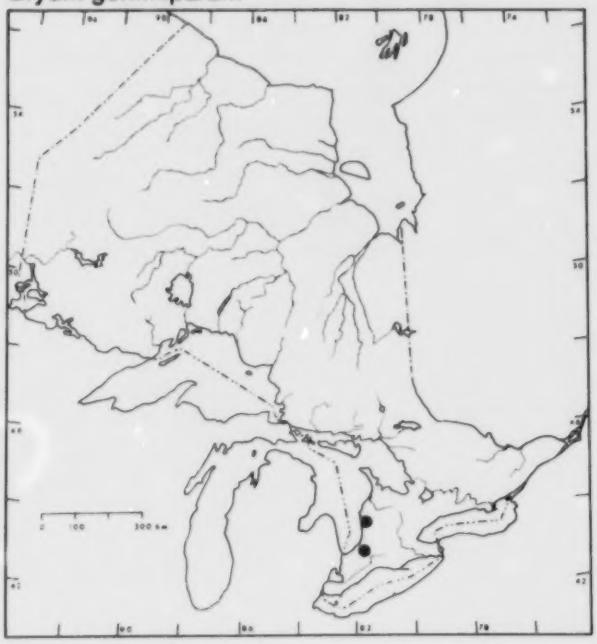
Bryum capillare var. flaccidum

Bryum cyclophyllum

Bryum dichotomum

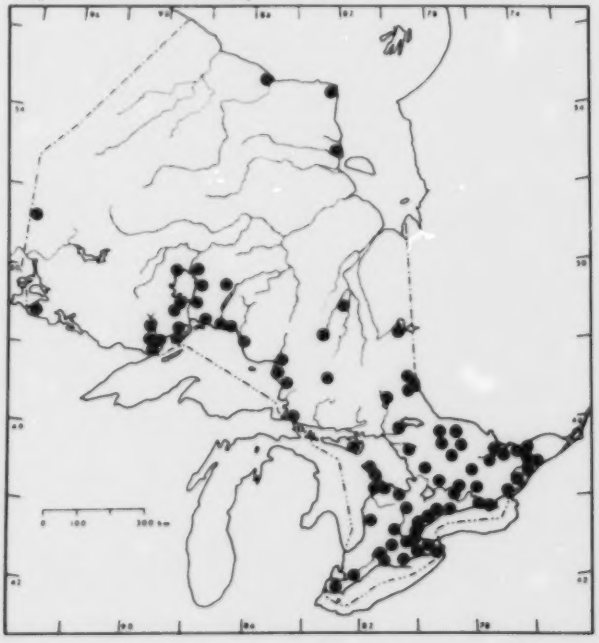


Bryum gemmiparum



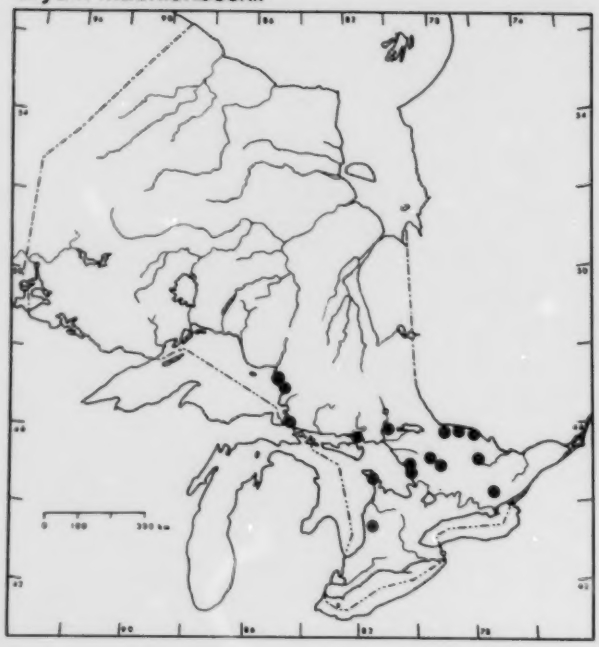
Bryum knowltonii

Bryum lisae var. cuspidatum



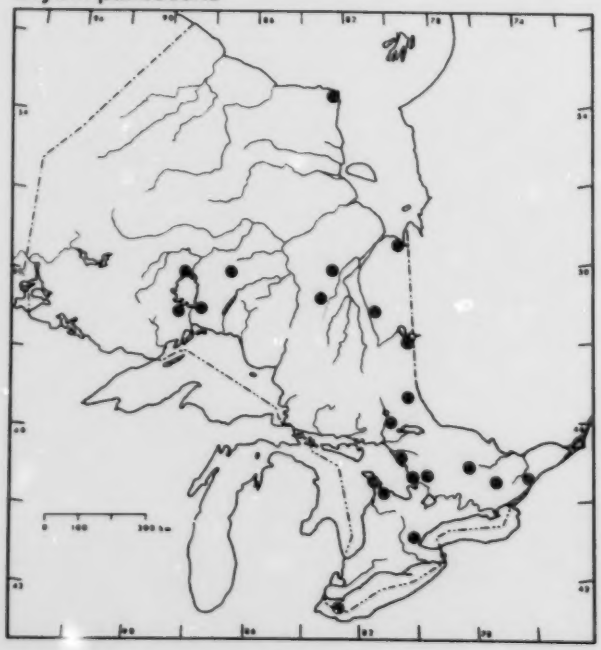
Bryum miniatum

Bryum muehlenbeckii

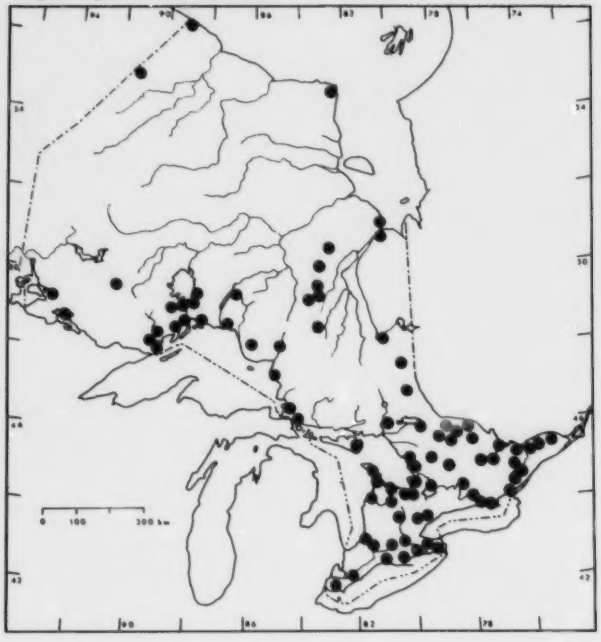


Bryum pallens

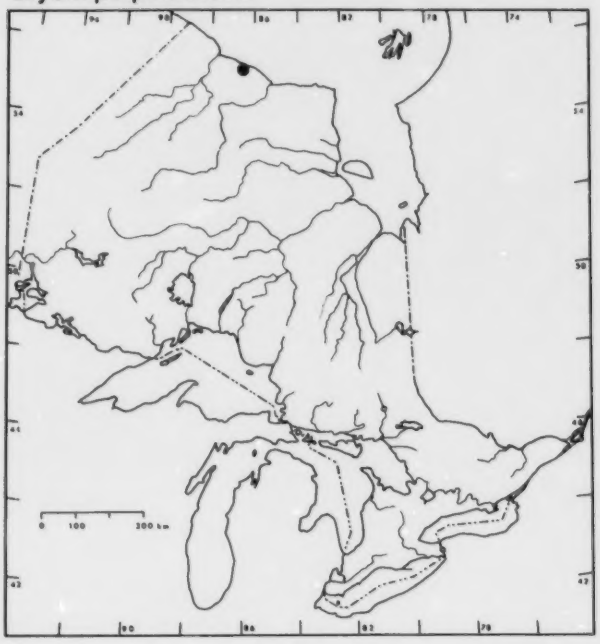
Bryum pallescens



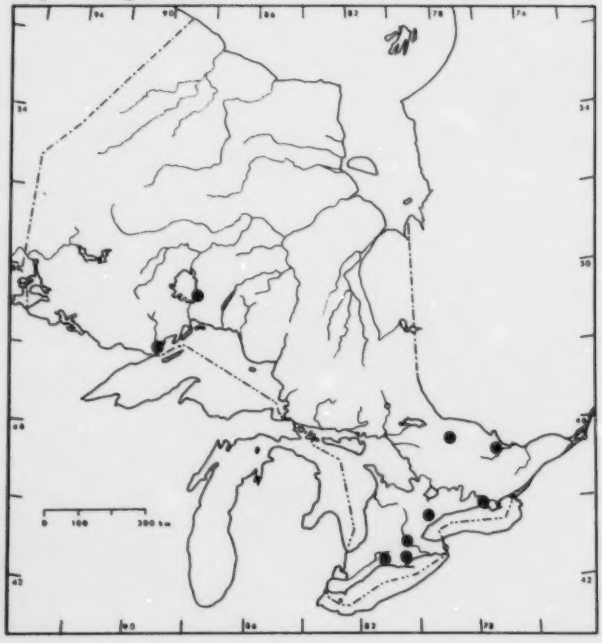
Bryum pseudotriquetrum



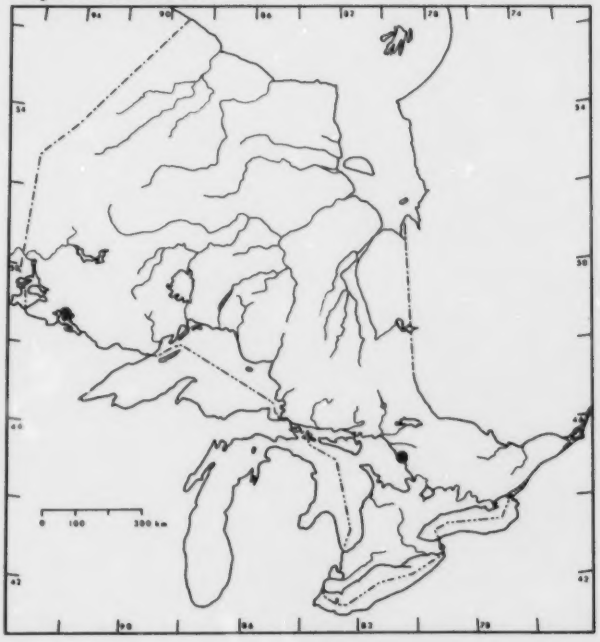
Bryum purpurascens



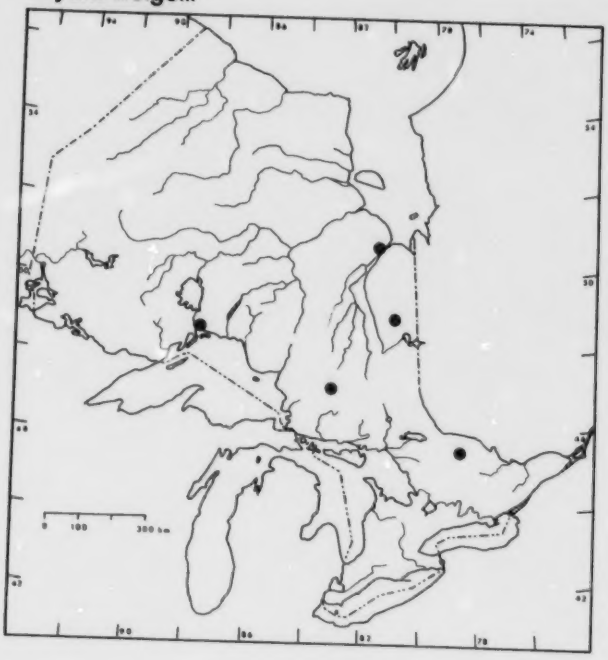
Bryum uliginosum



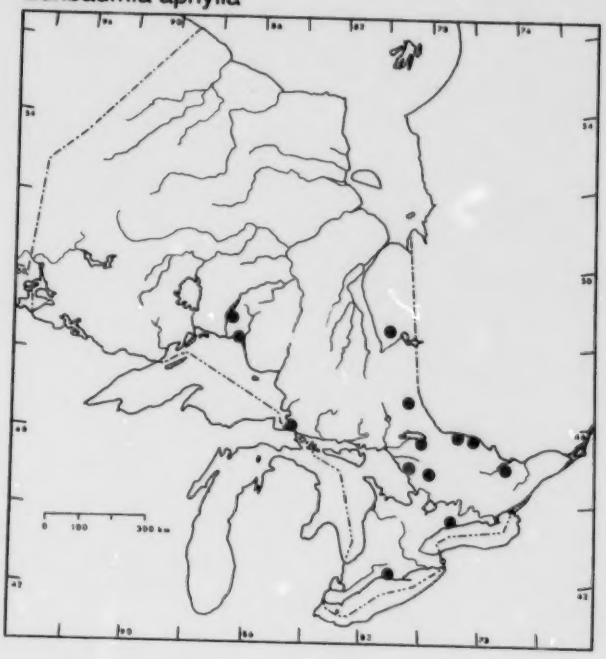
Bryum violaceum



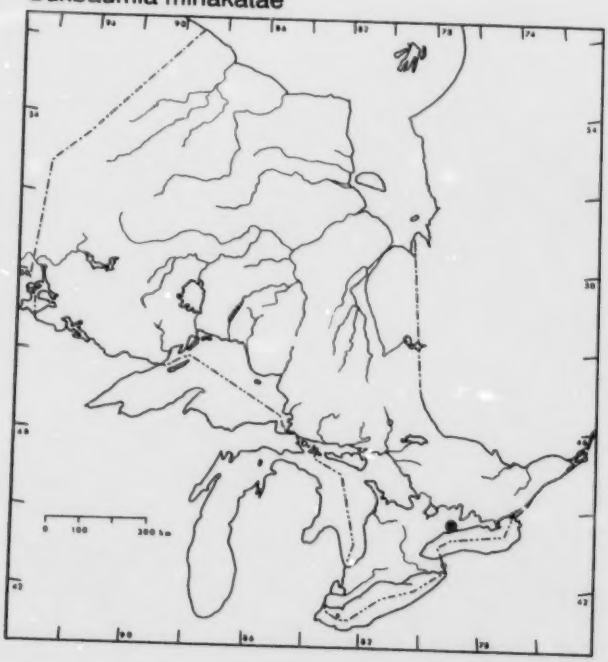
Bryum weigelii



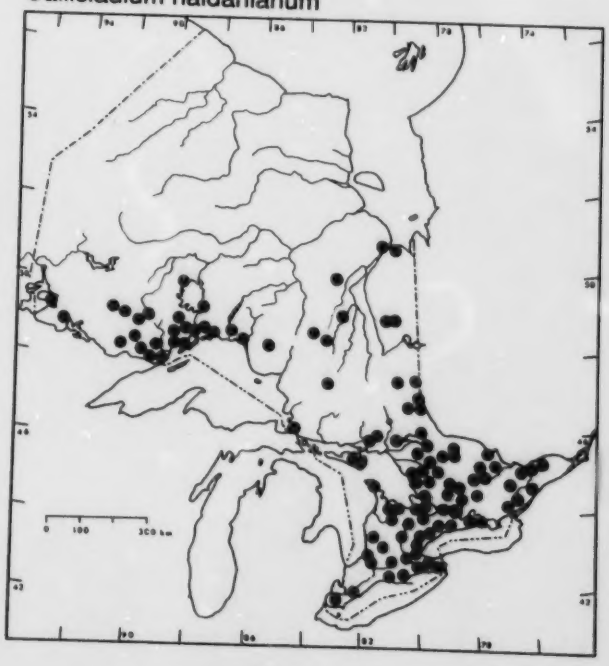
Buxbaumia aphylla



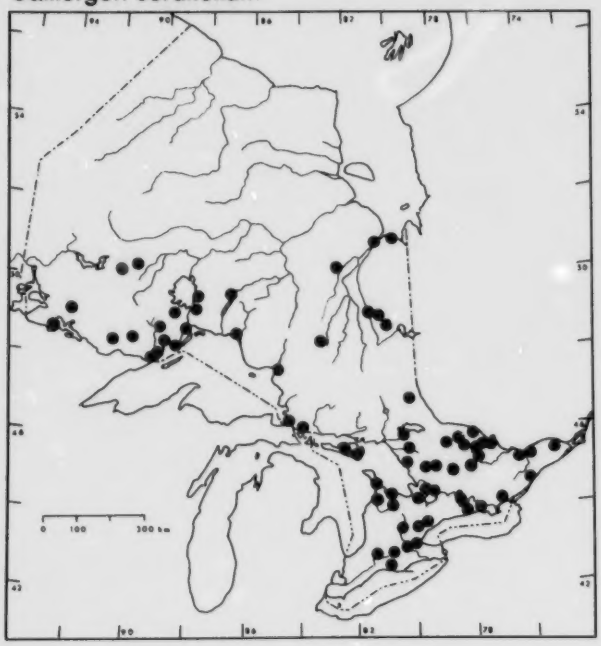
Buxbaumia minakatae



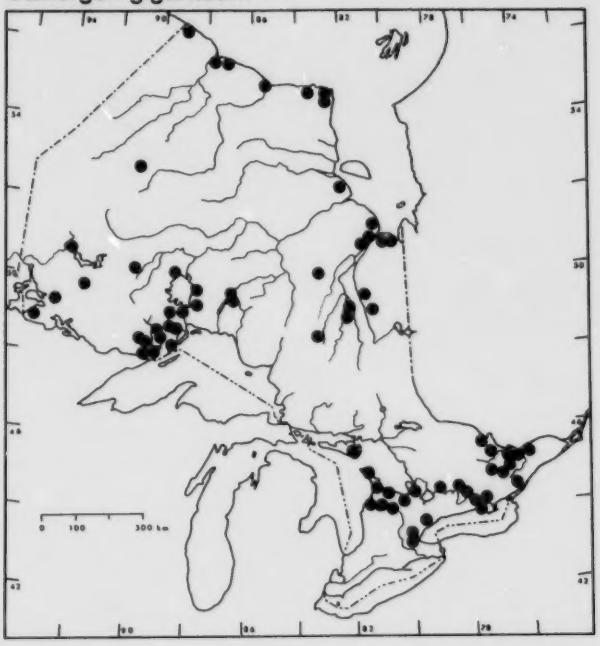
Callicladium haldanianum



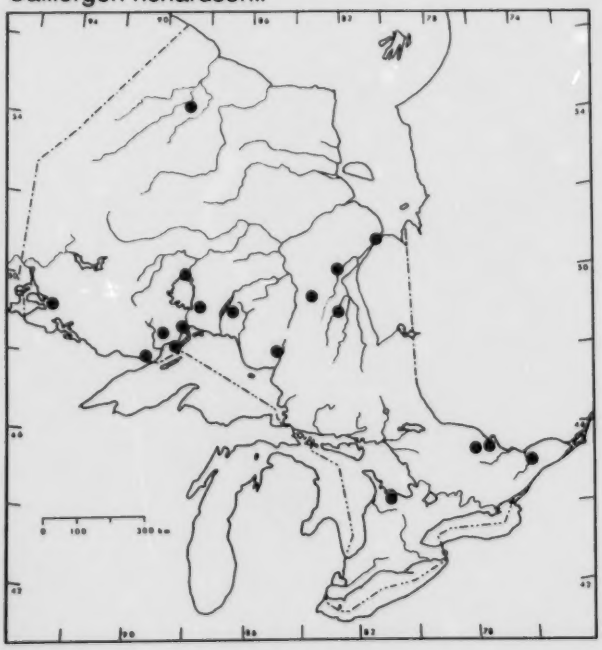
Calliergon cordifolium



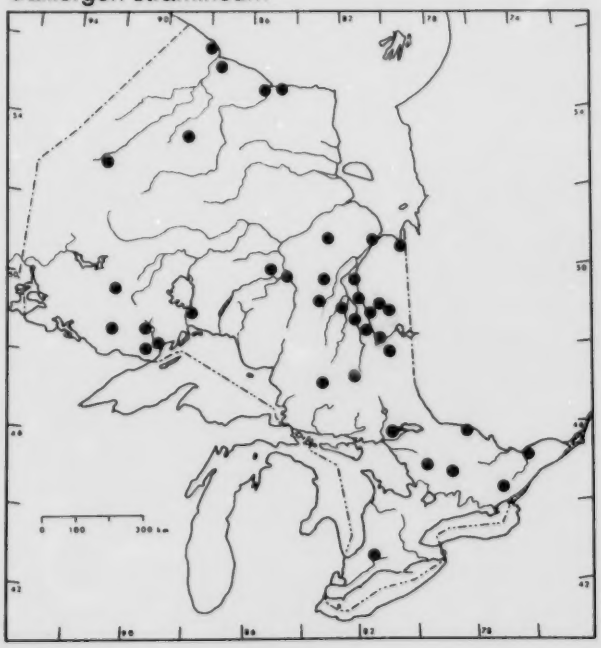
Calliergon giganteum



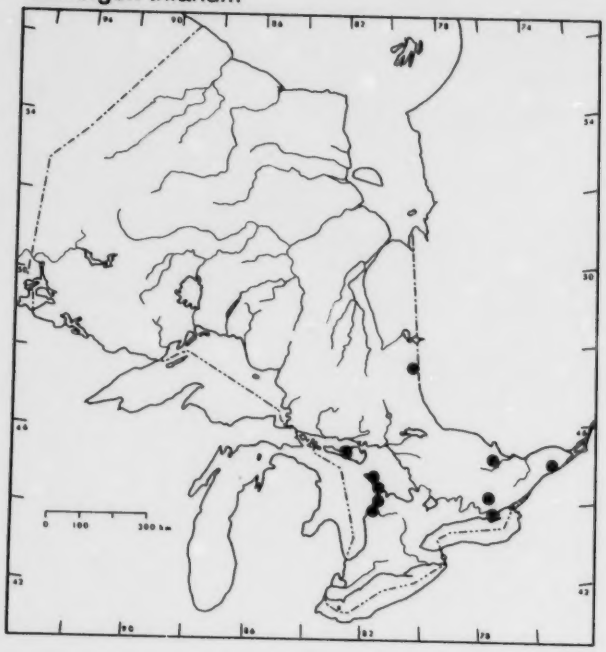
Calliergon richardsonii



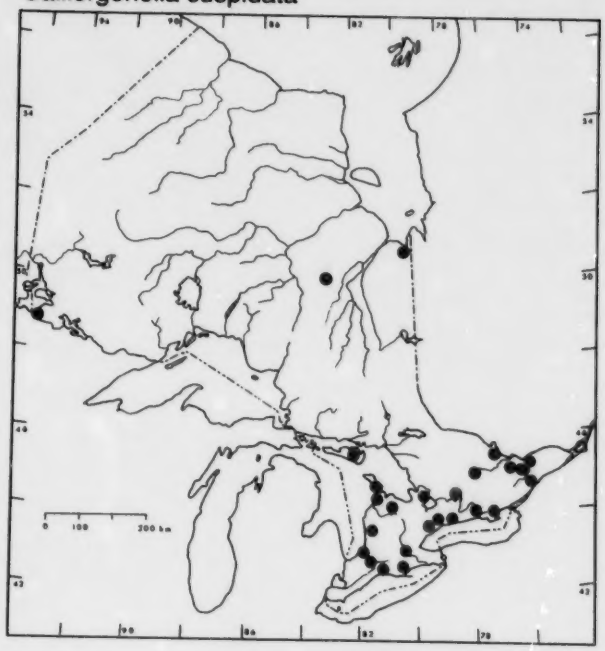
Calliergon stramineum



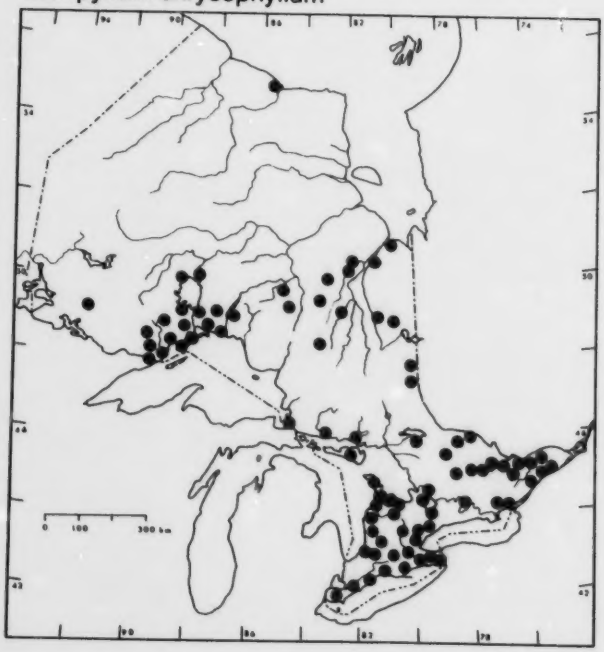
Calliergon trifarium



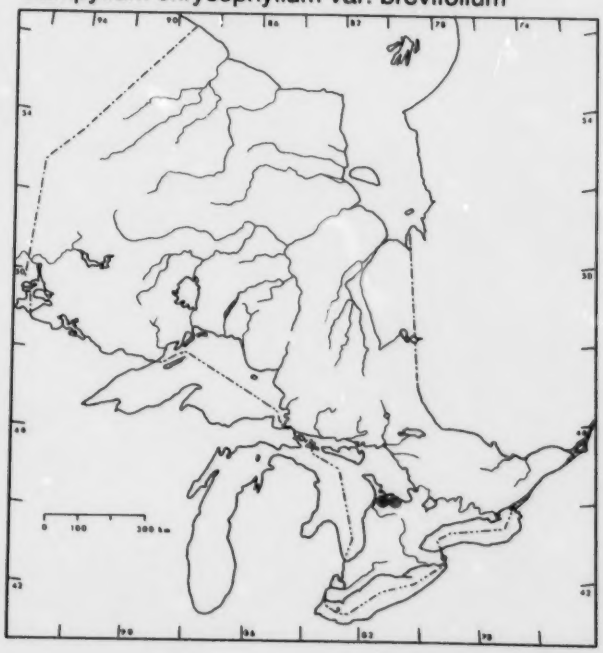
Calliergonella cuspidata



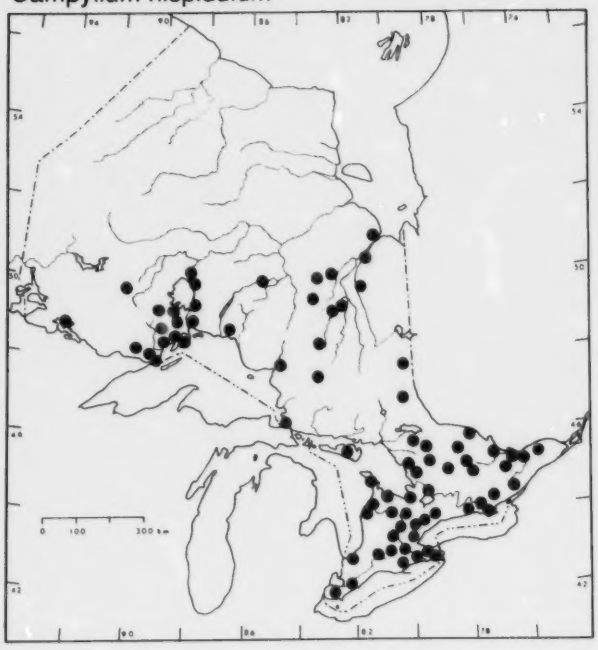
Campylium chrysophyllum



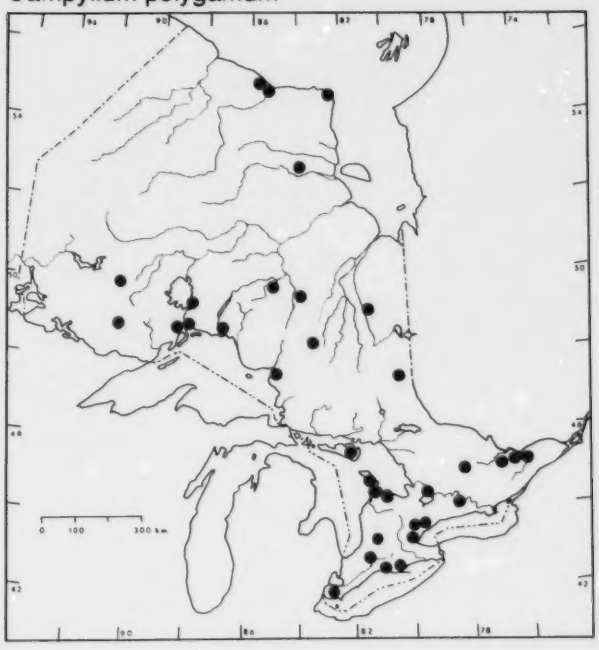
Campylium chrysophyllum var. brevifolium



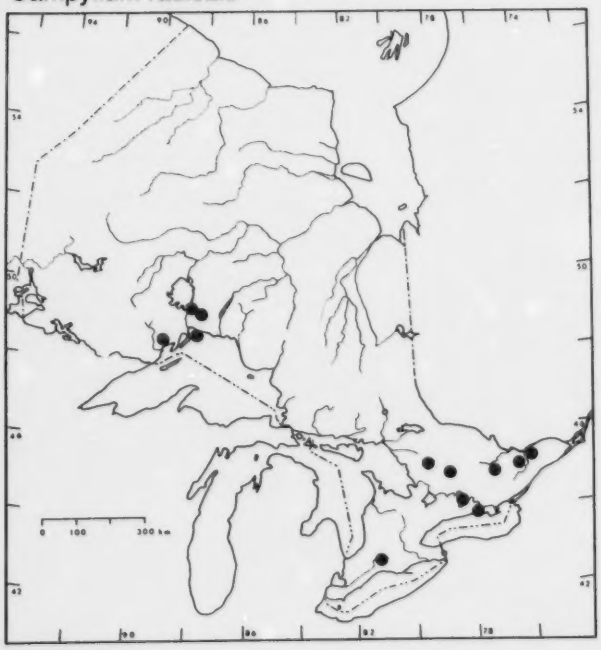
Campylium hispidulum



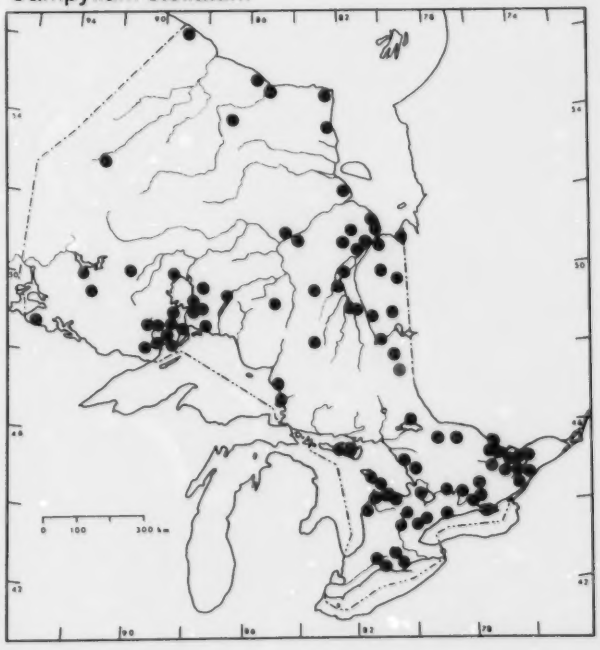
Campylium polygamum



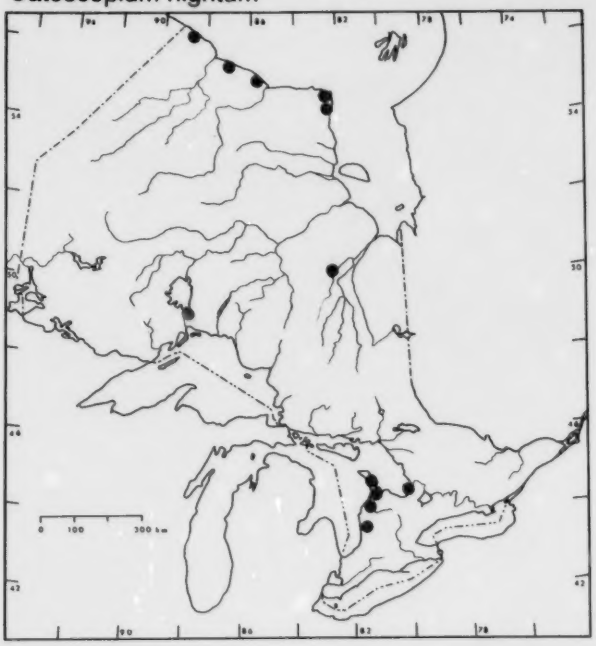
Campylium radicale



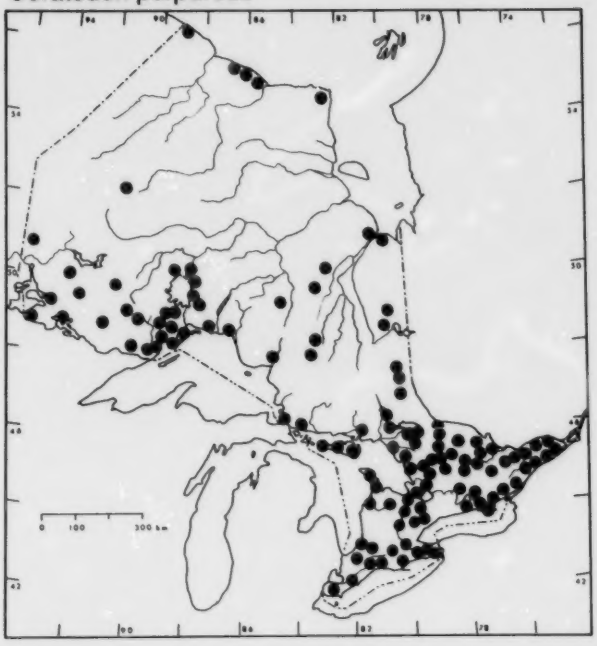
Campylium stellatum



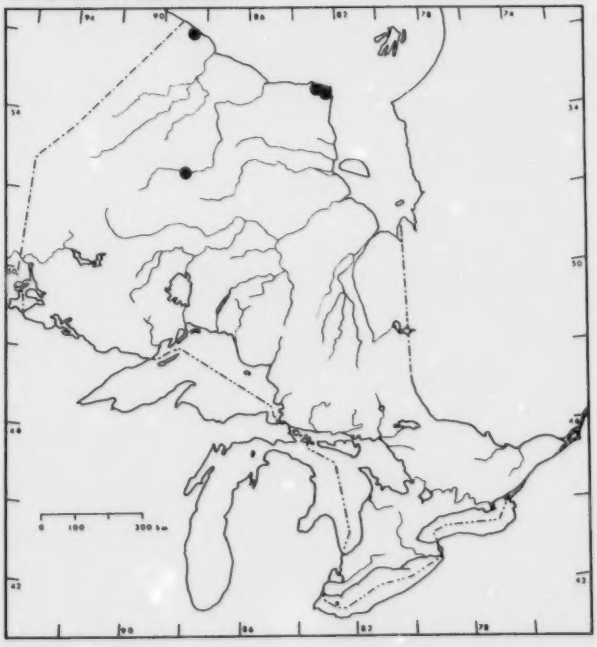
Catoscopium nigritum



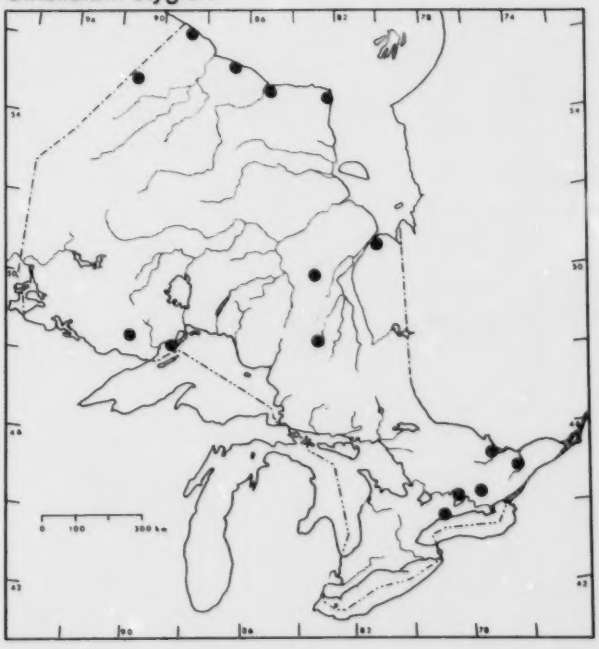
Ceratodon purpureus



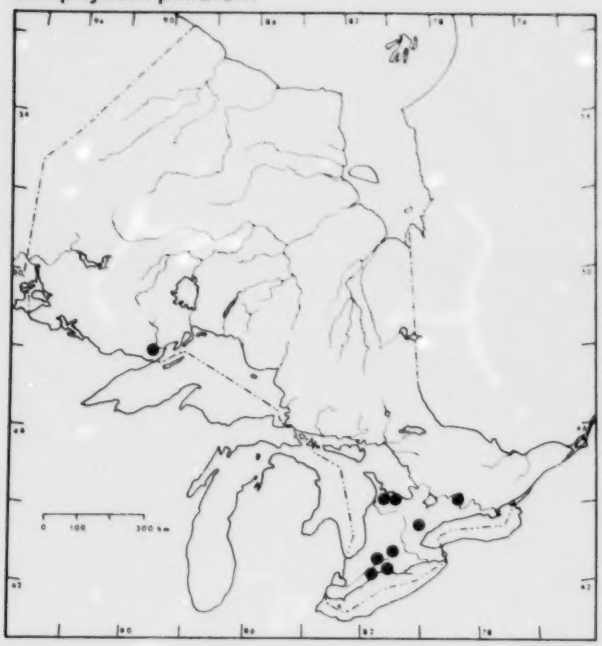
Cinclidium latifolium



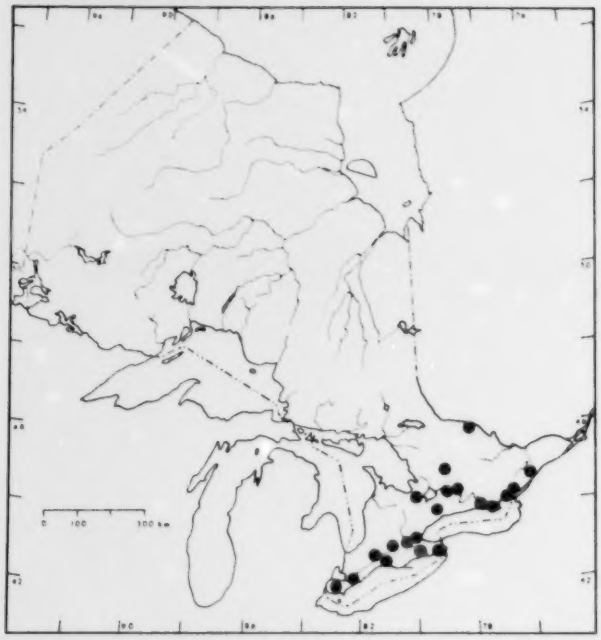
Cinclidium stygium



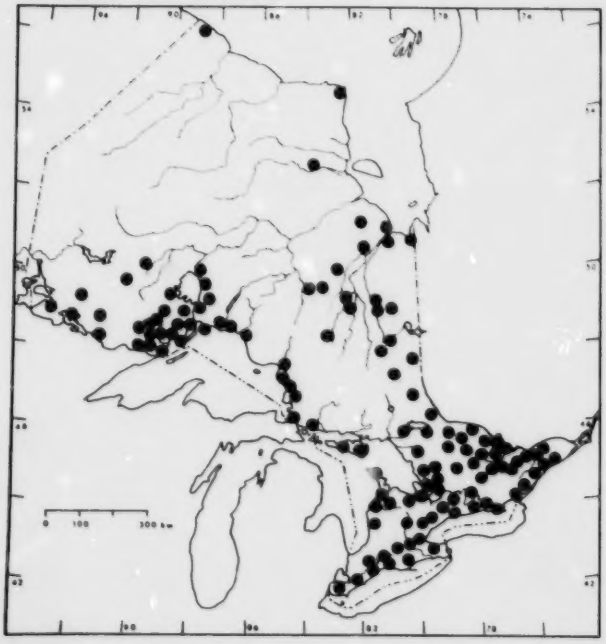
Cirriphyllum piliferum



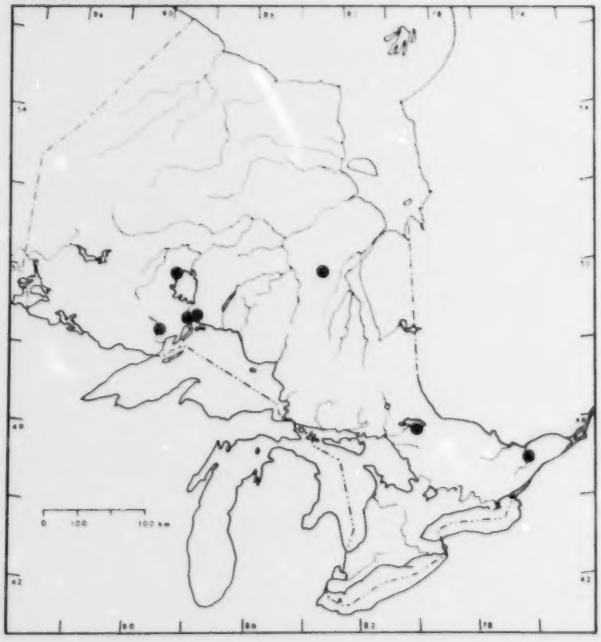
Climacium americanum



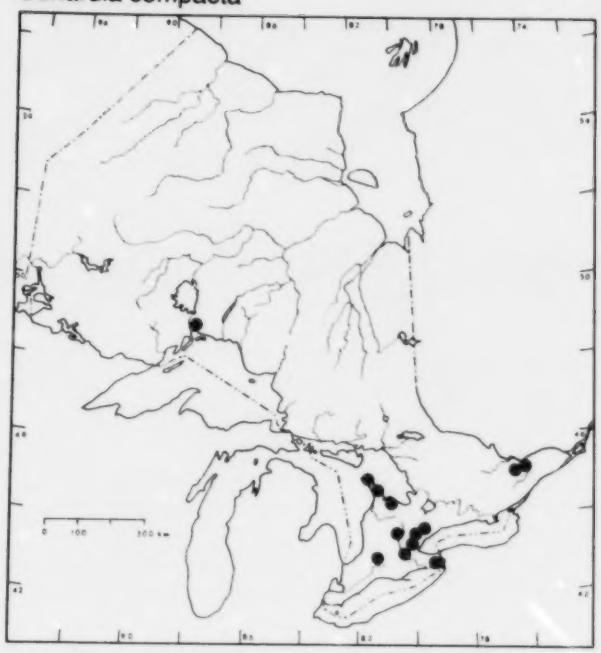
Climacium dendroides



Cnestrum schisti



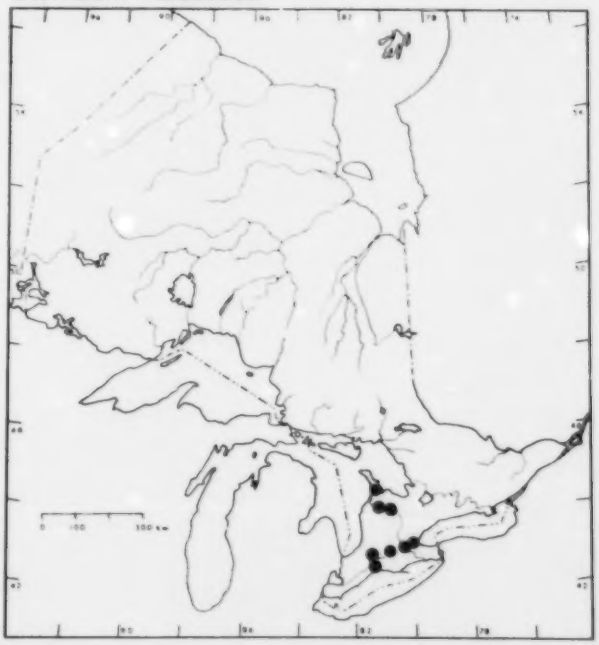
Conardia compacta



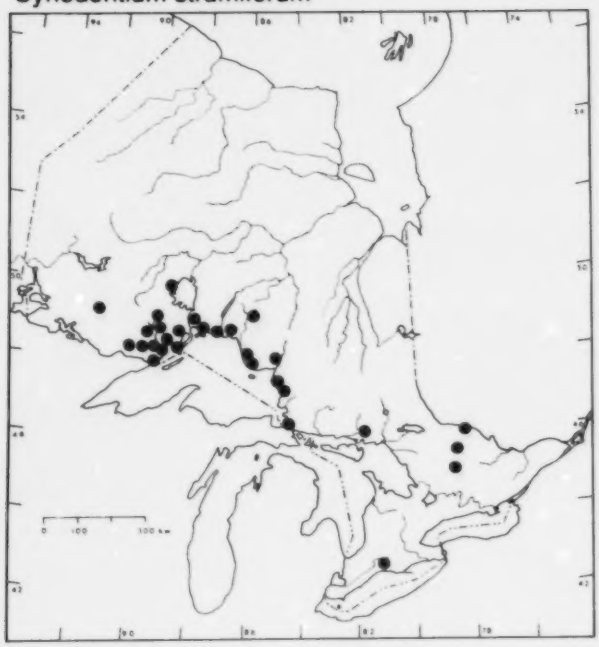
Coscinodon cribrosus

Cratoneuron filicinum

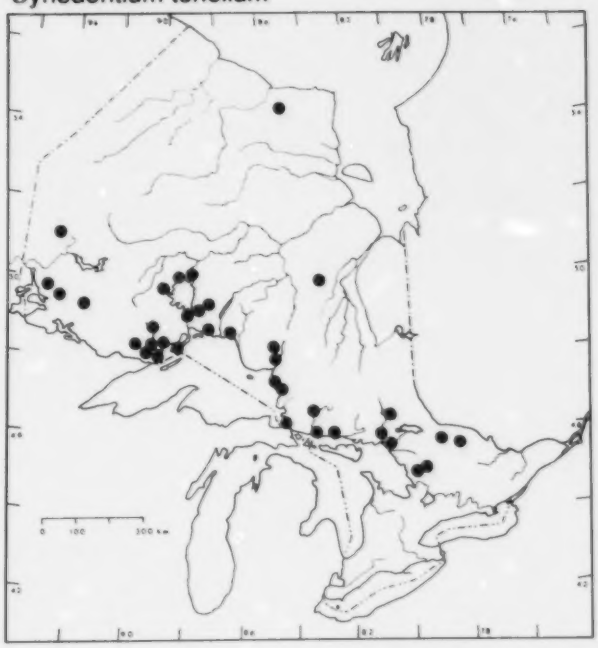
Ctenidium malacodes



Cynodontium strumiferum

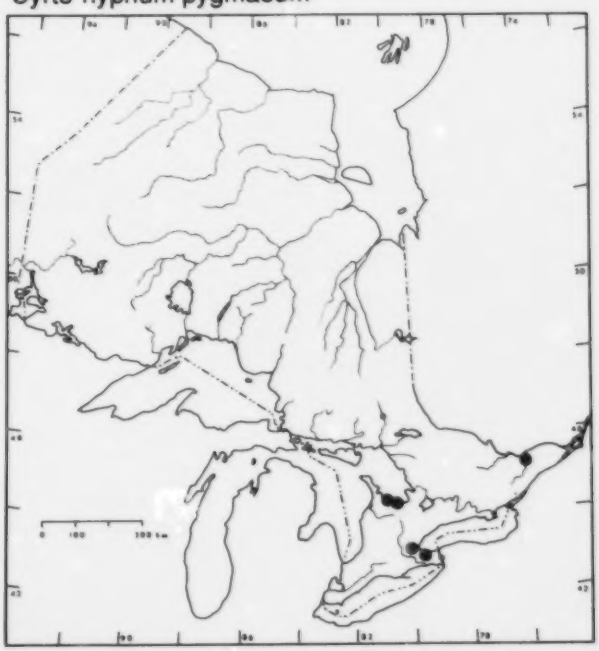


Cynodontium tenellum

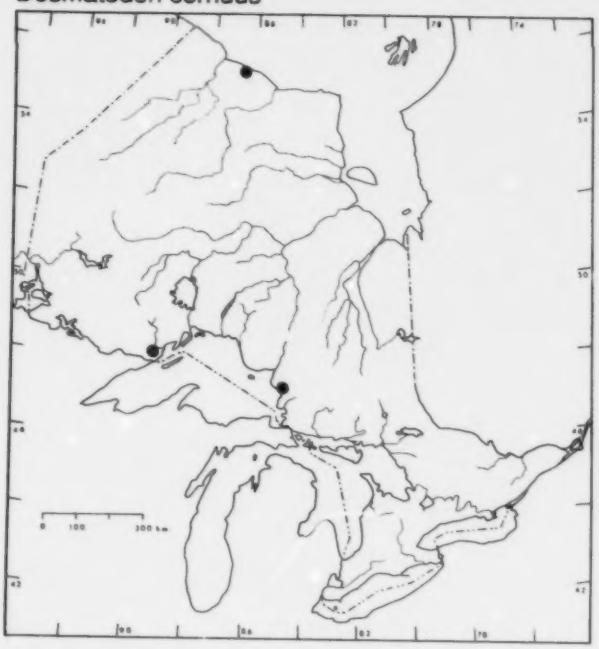


Cyrto-hypnum minutulum

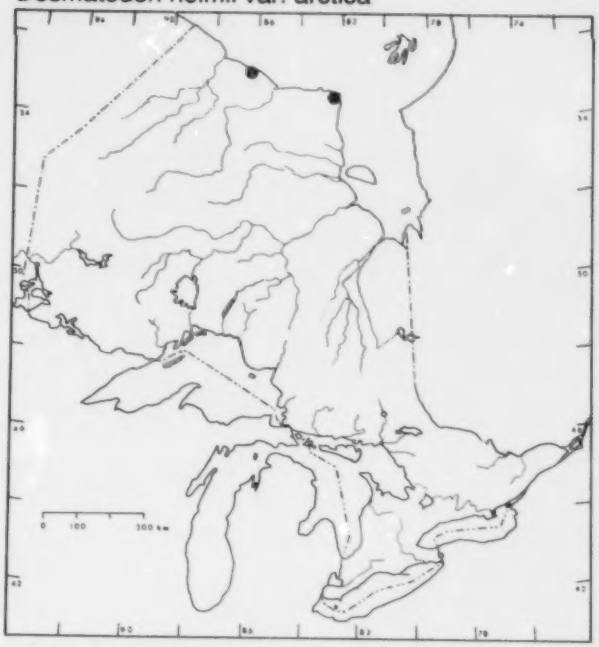
Cyrto-hypnum pygmaeum



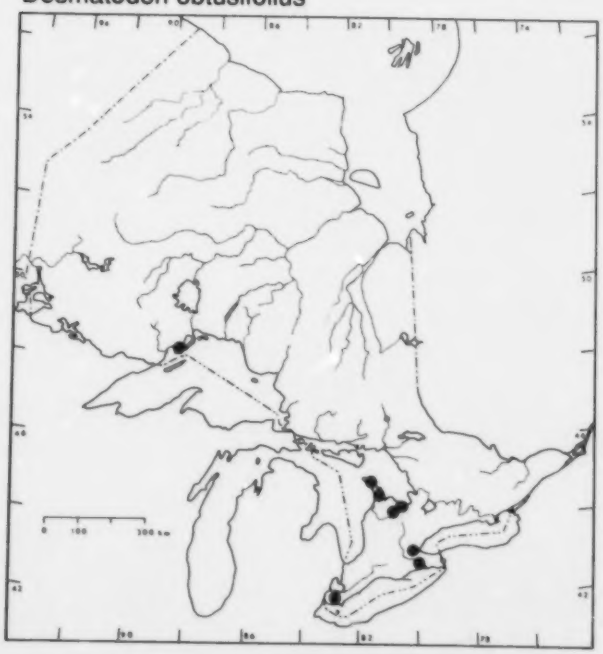
Desmatodon cernuus



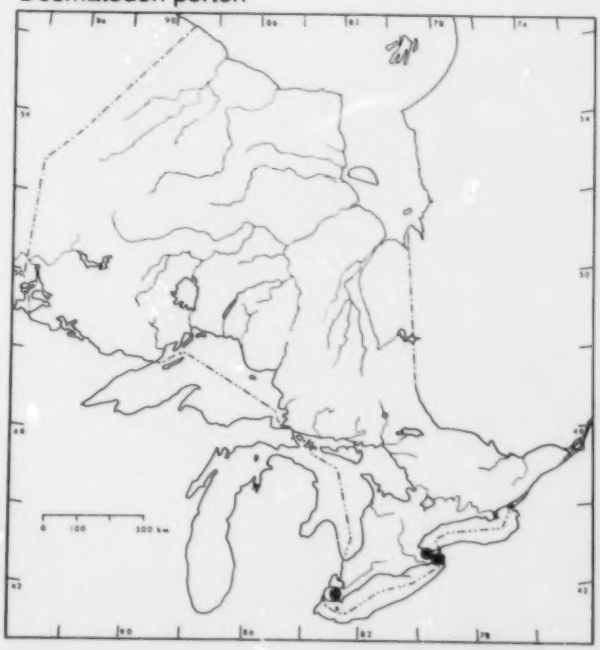
Desmatodon heimii var. arctica



Desmatodon obtusifolius

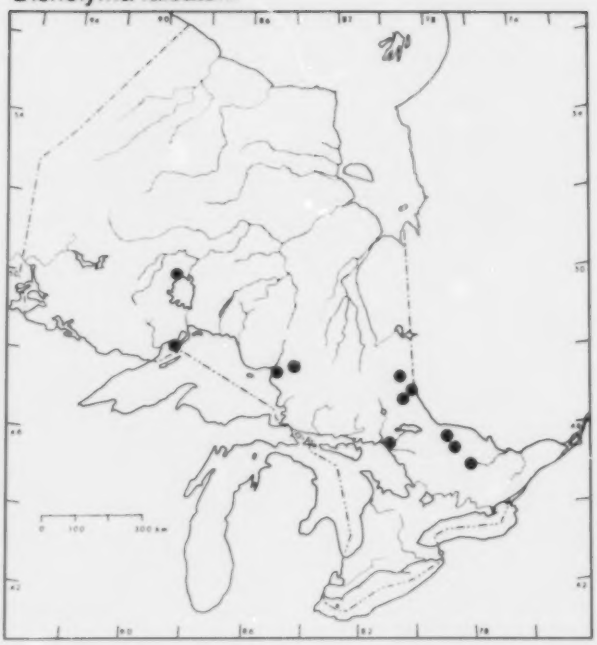


Desmatodon porteri



Dichelyma capillaceum

Dichelyma falcatum



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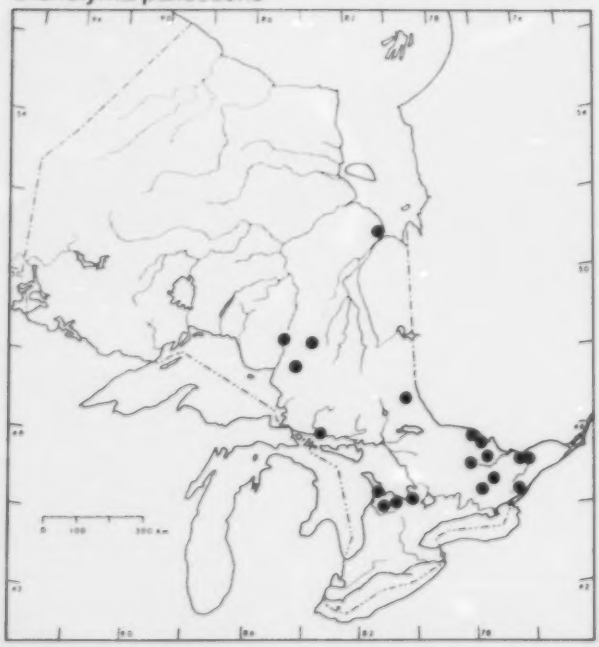
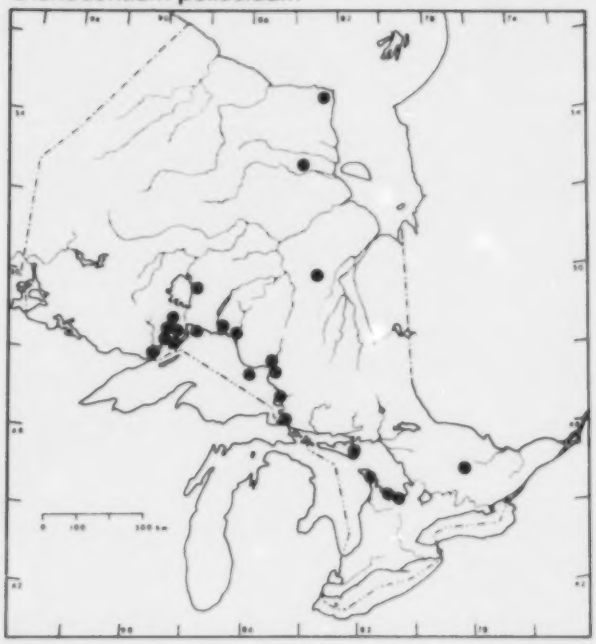
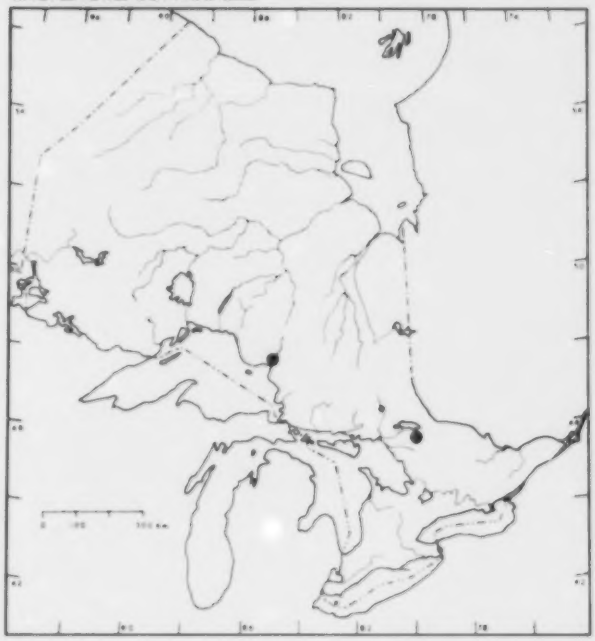


Dichelyma uncinatum

Dichodontium pellucidum

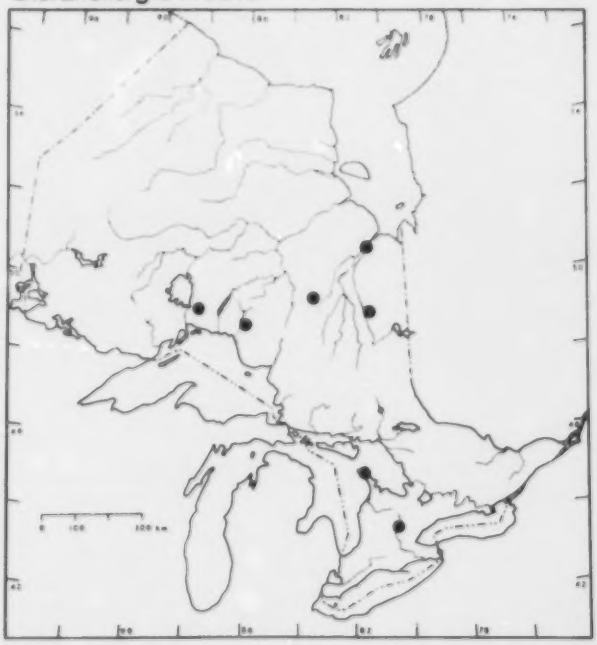


Dicranella cerviculata

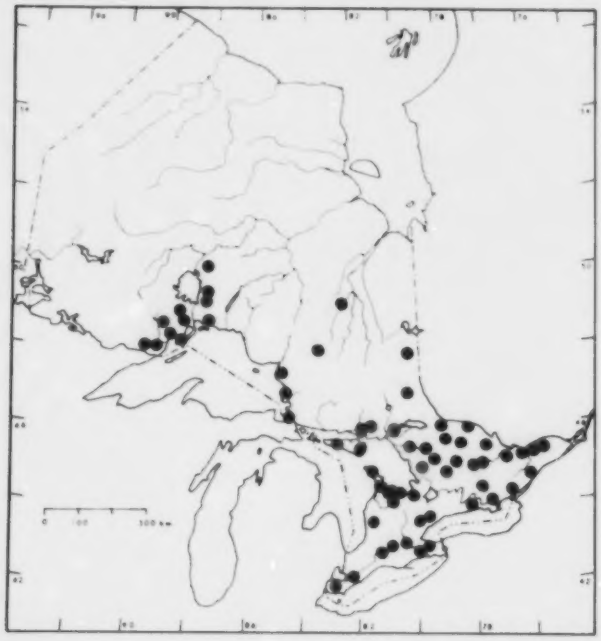


Dicranella crispa

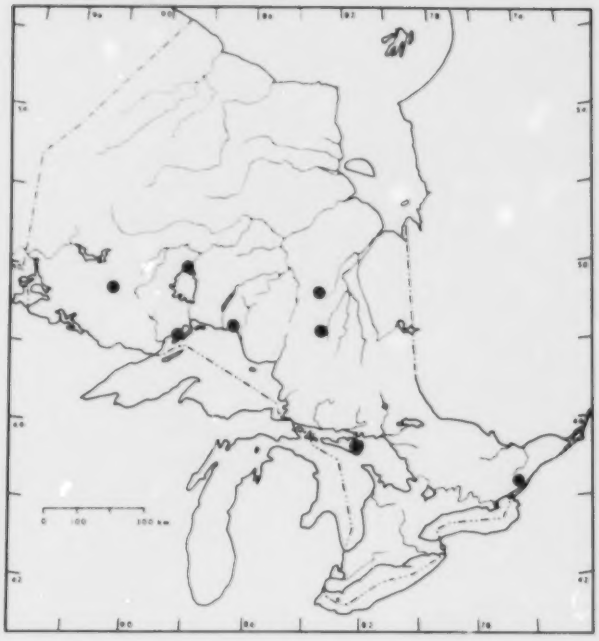
Dicranella grevilleana



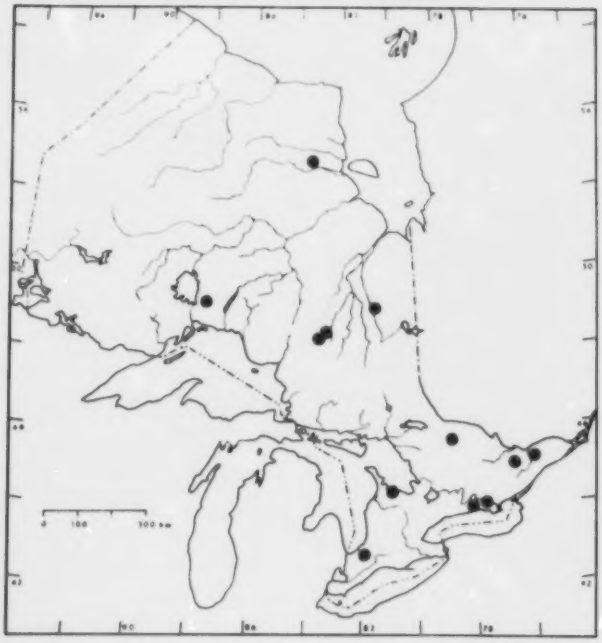
Dicranella heteromalla



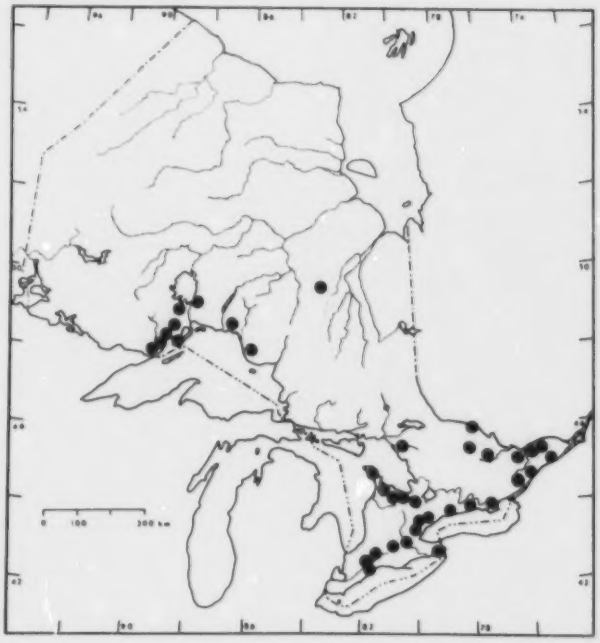
Dicranella schreberiana



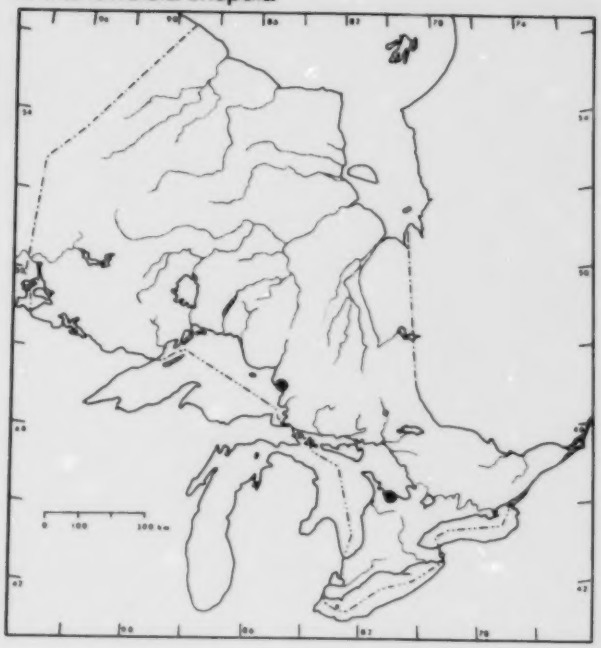
Dicranella schreberiana var. robusta



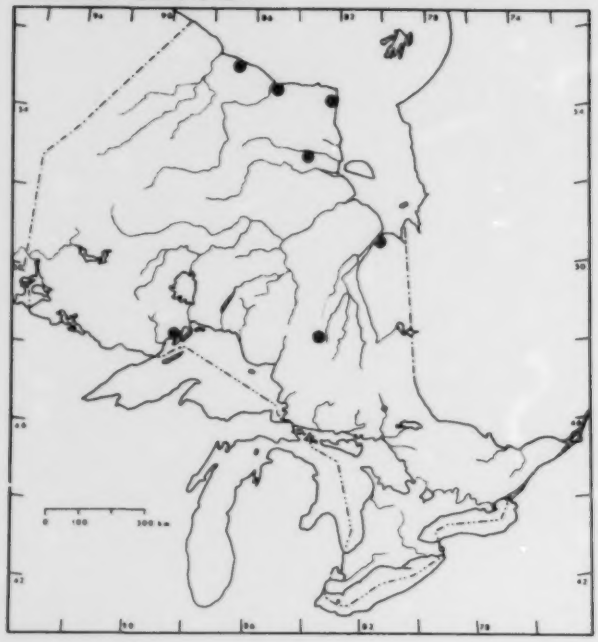
Dicranella varia



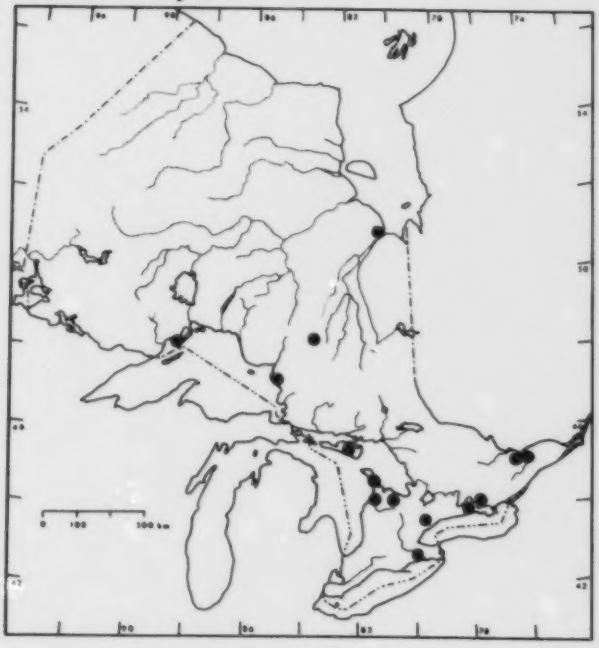
Dicranoweisia crispula



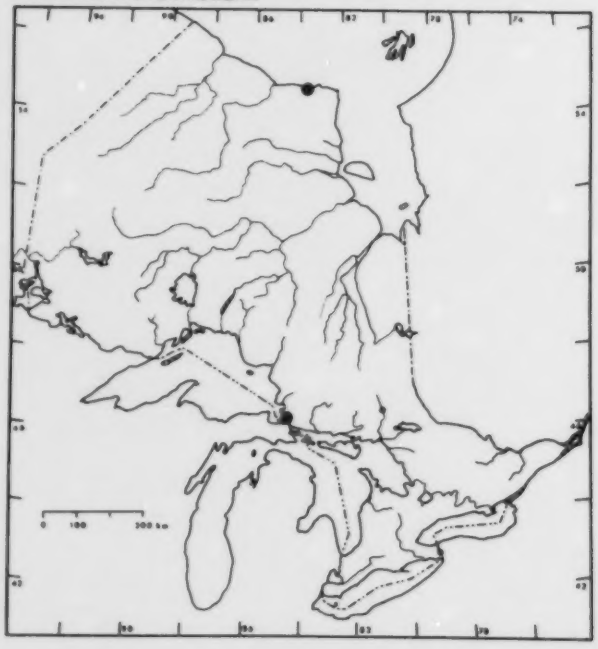
Dicranum acutifolium



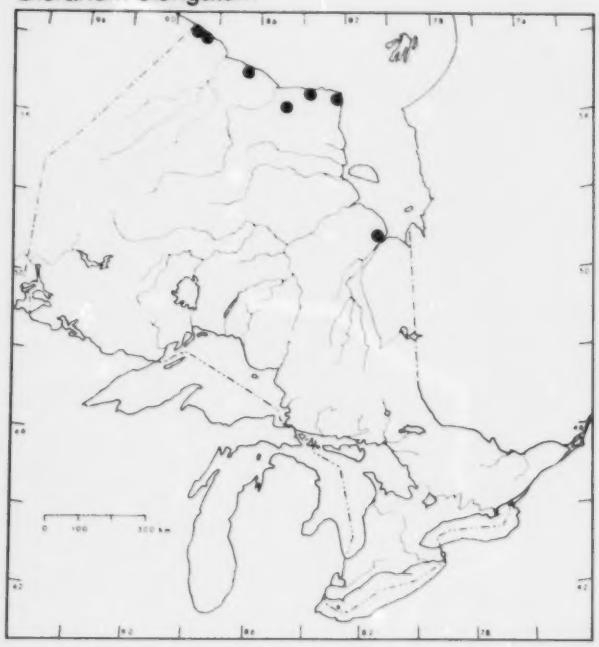
Dicranum bonjeanii



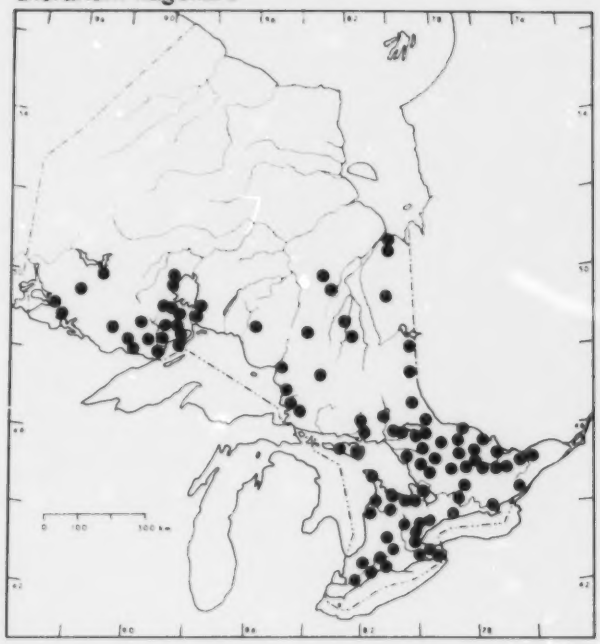
Dicranum brevifolium



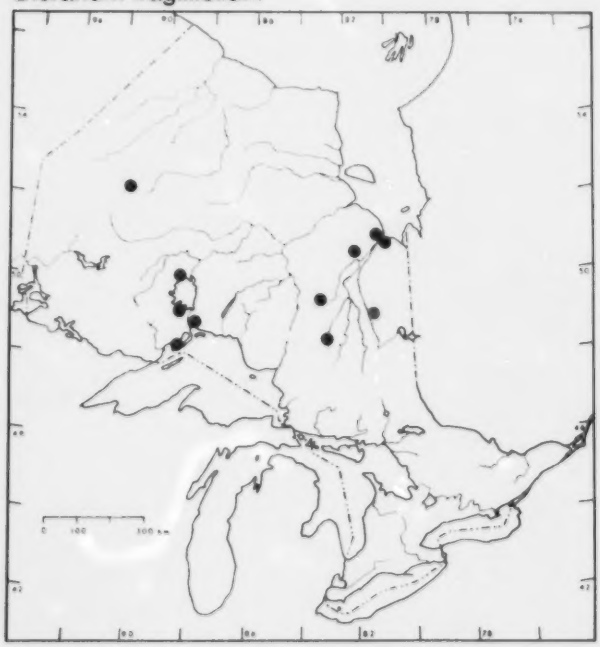
Dicranum elongatum



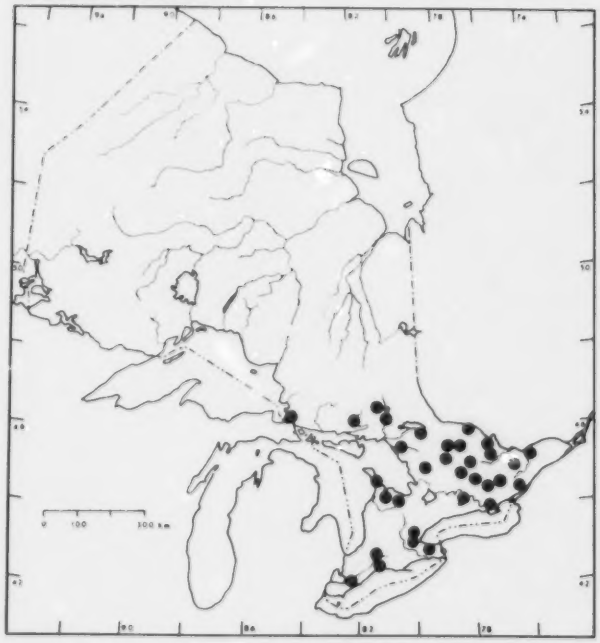
Dicranum flagellare



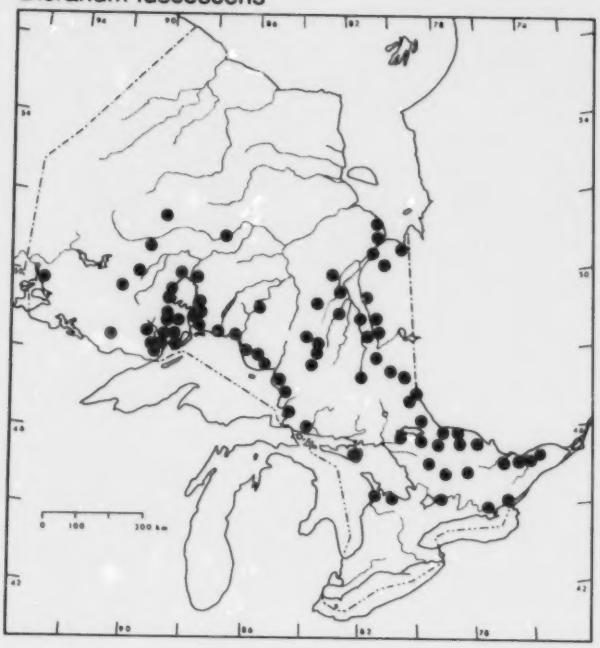
Dicranum fragilifolium



Dicranum fulvum



Dicranum fuscescens



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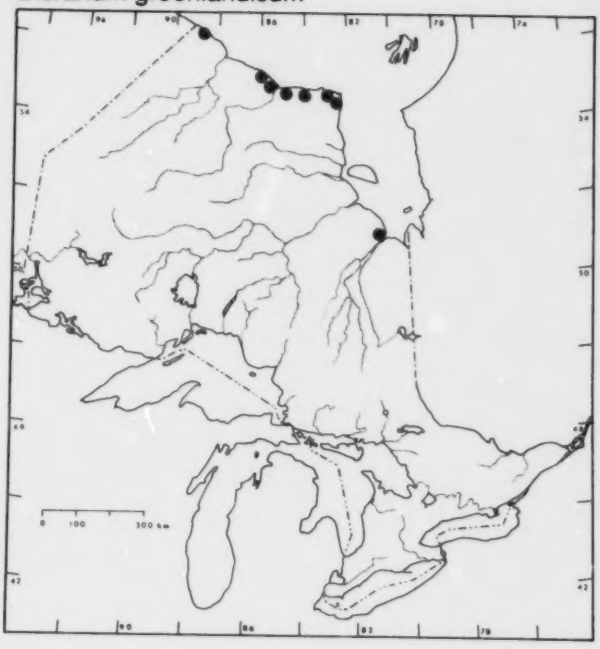
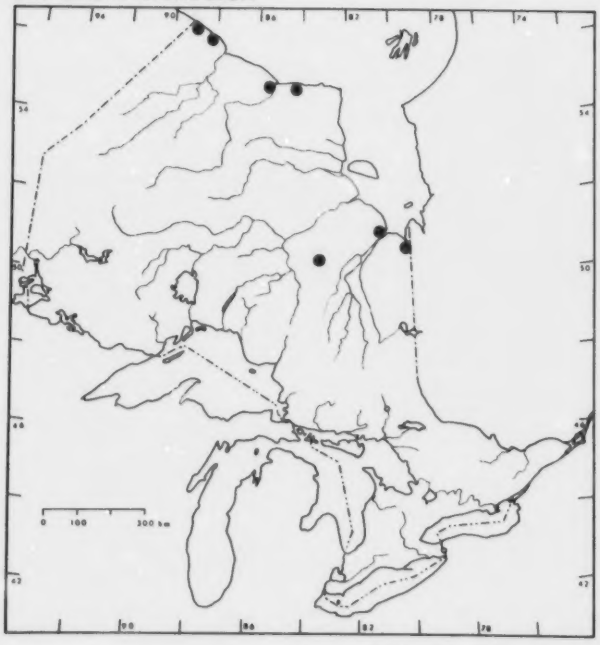
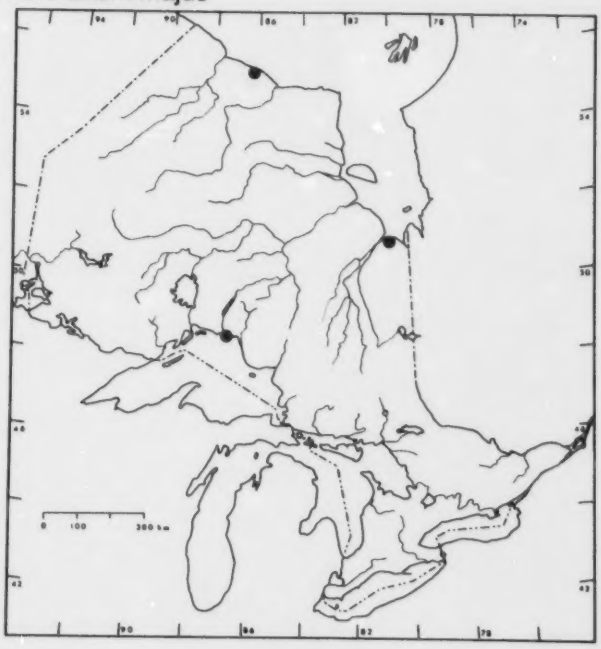


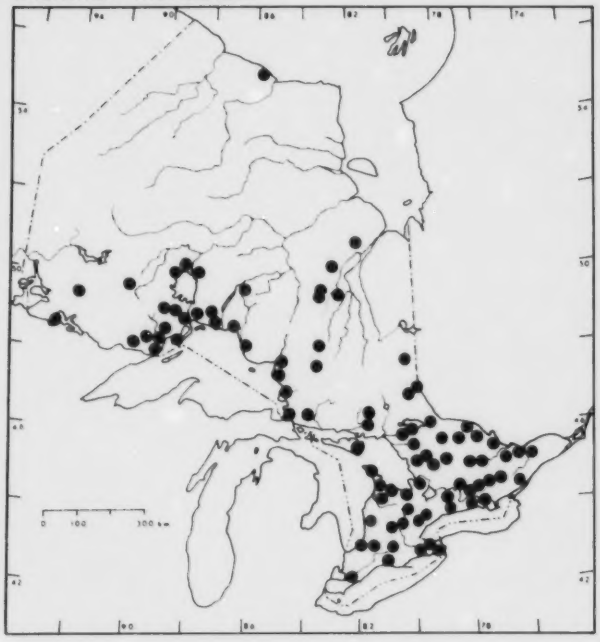
Dicranum leioneuron



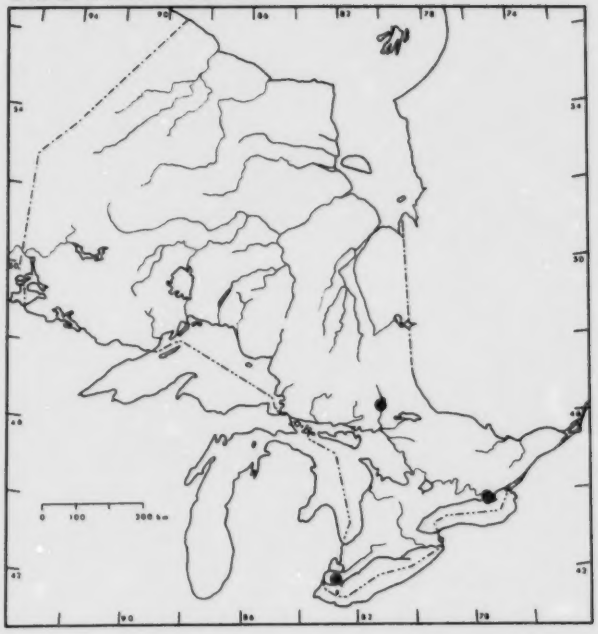
Dicranum majus



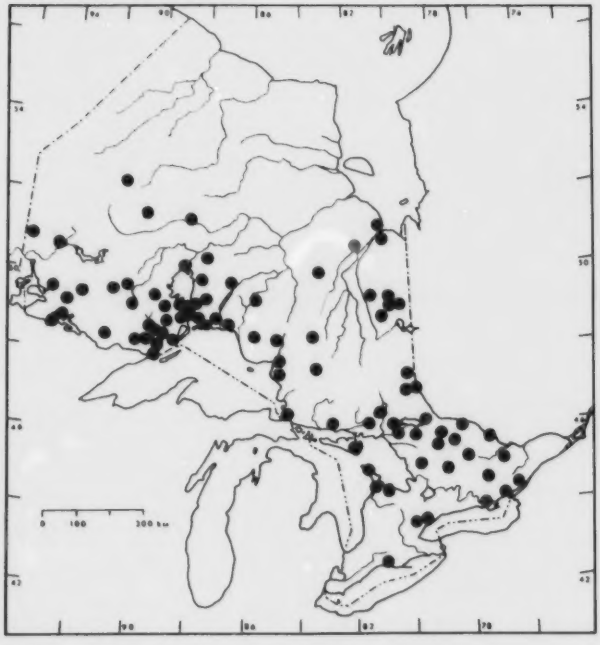
Dicranum montanum



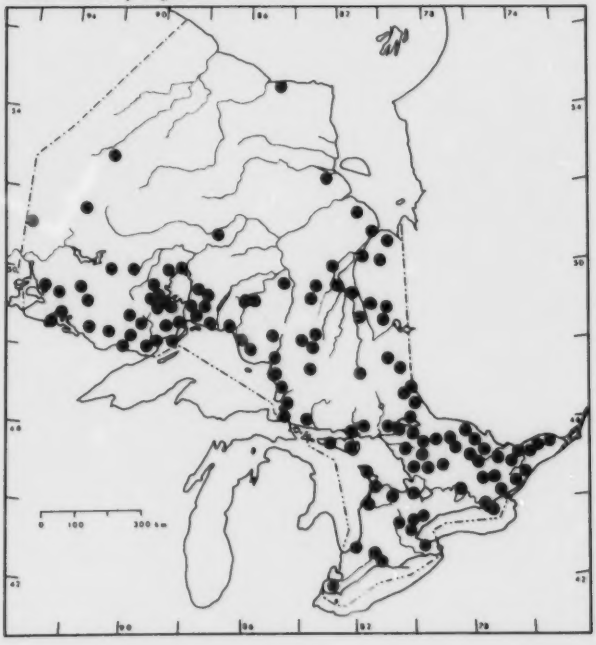
Dicranum muehlenbeckii



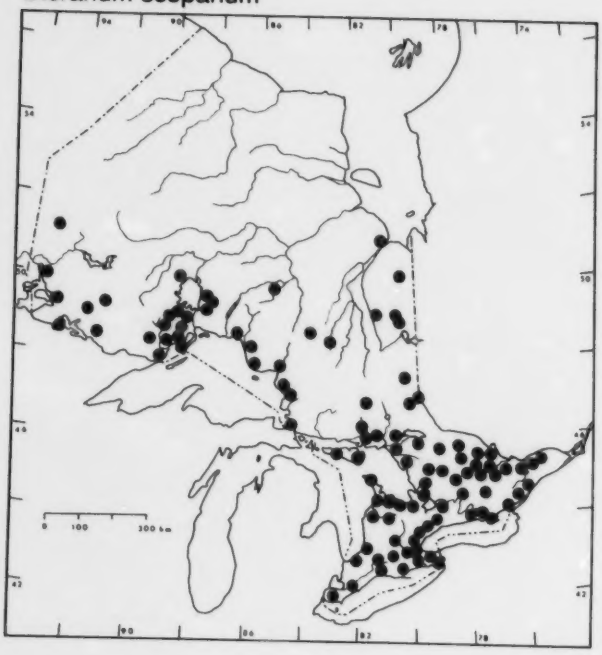
Dicranum ontariense



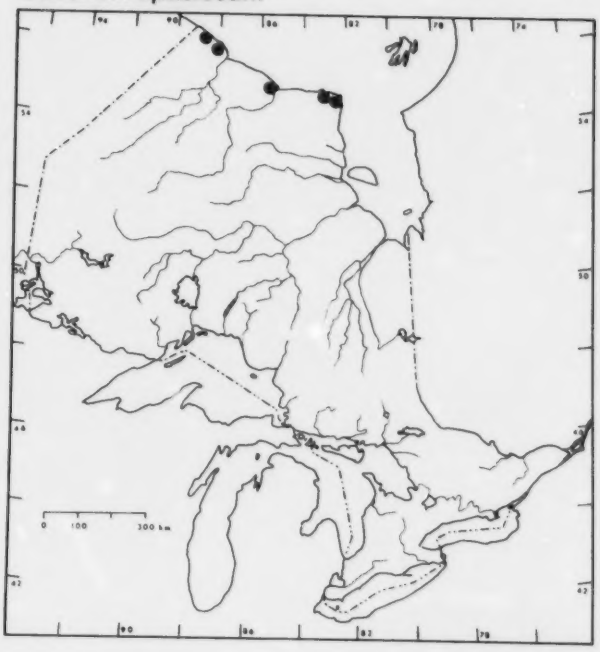
Dicranum polysetum



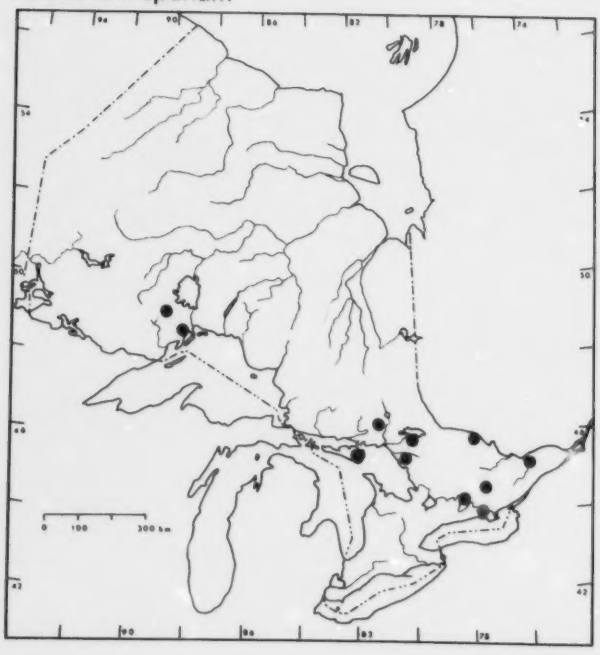
Dicranum scoparium



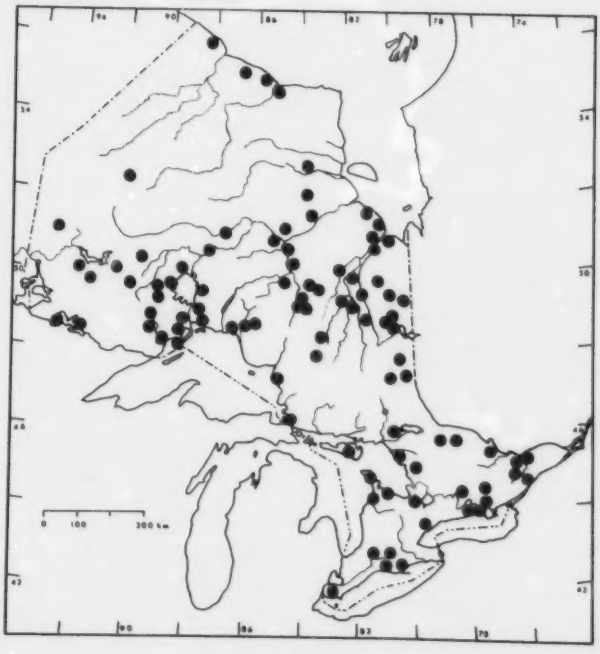
Dicranum spadiceum



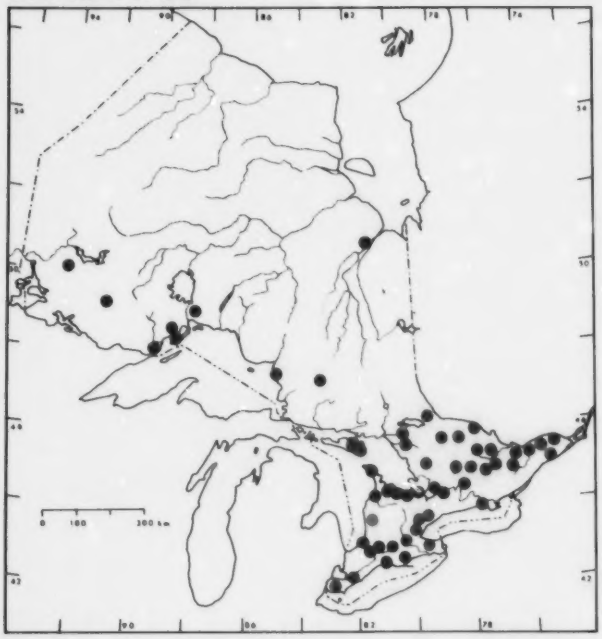
Dicranum spurium



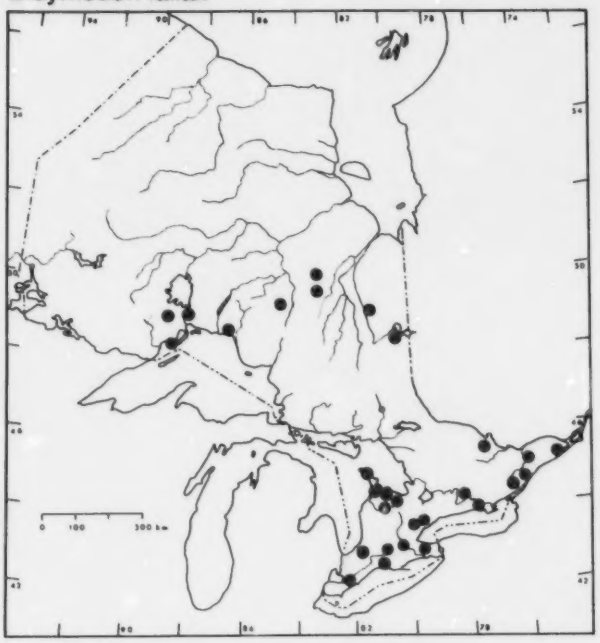
Dicranum undulatum



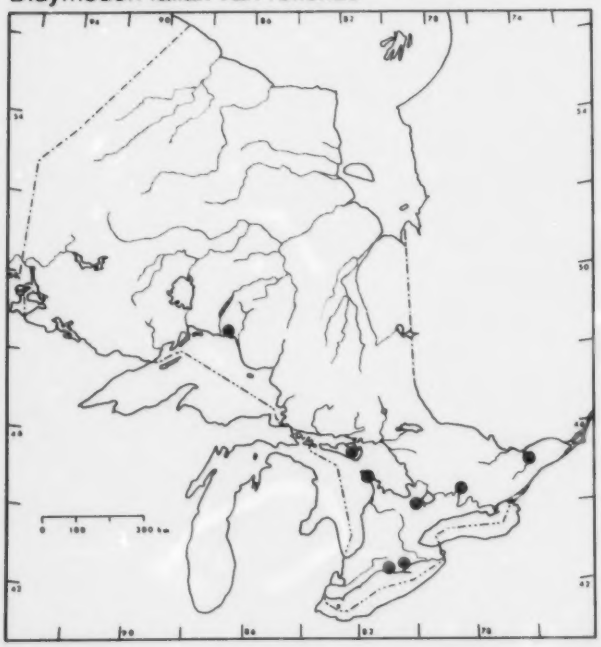
Dicranum viride



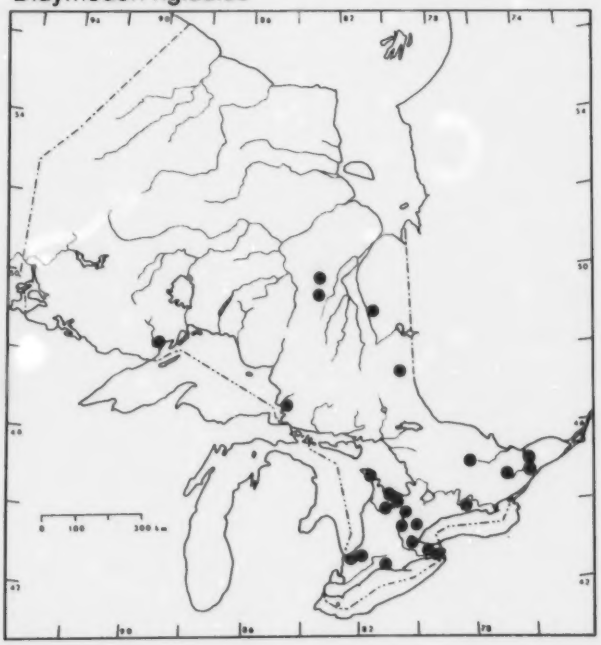
Didymodon fallax



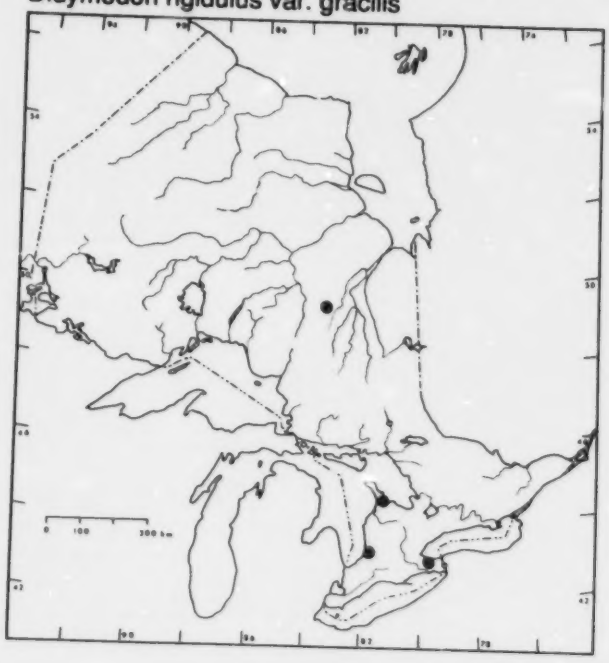
Didymodon fallax var. reflexus



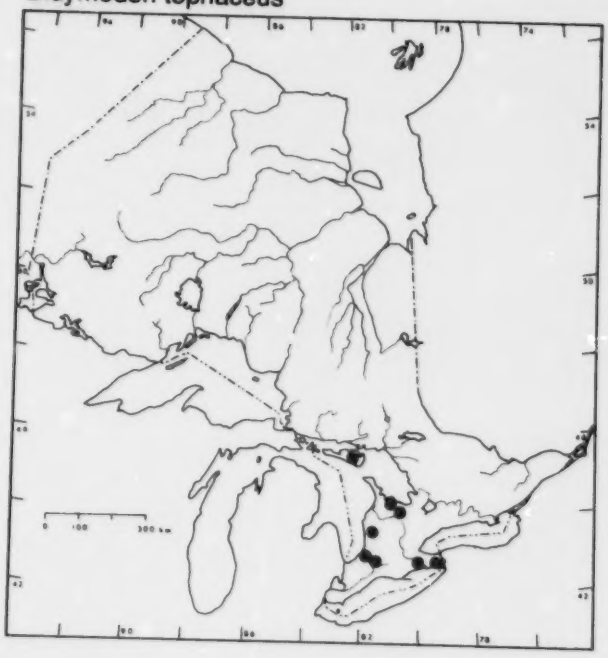
Didymodon rigidulus



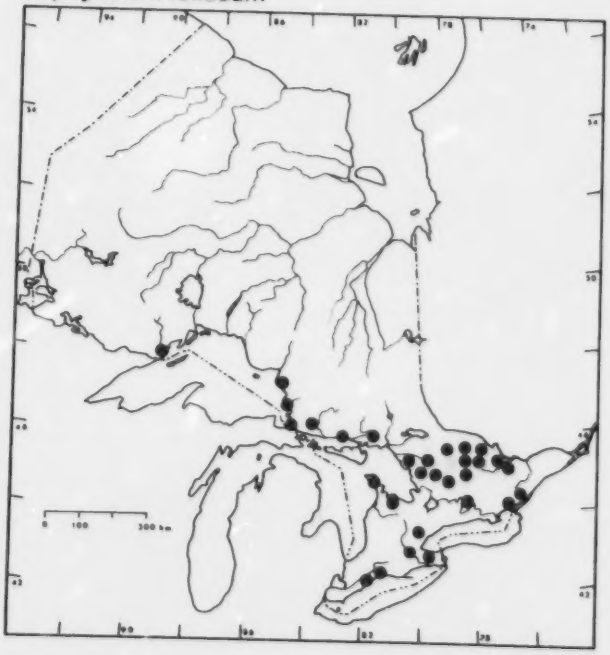
Didymodon rigidulus var. gracilis



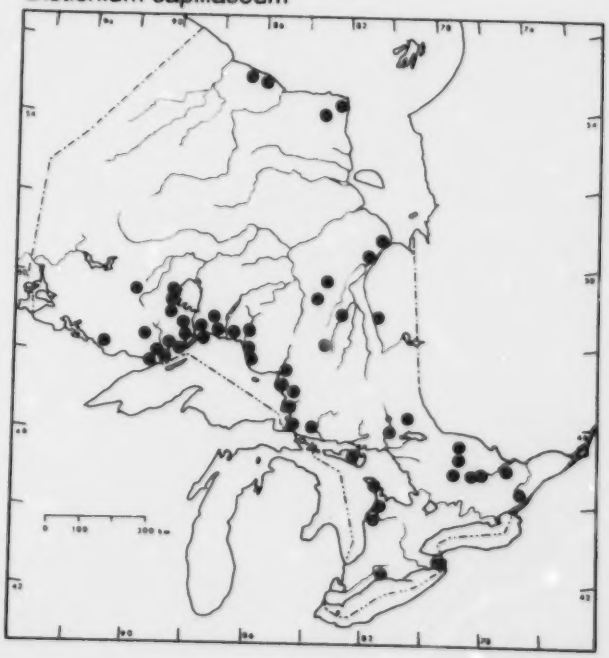
Didymodon tophaceus



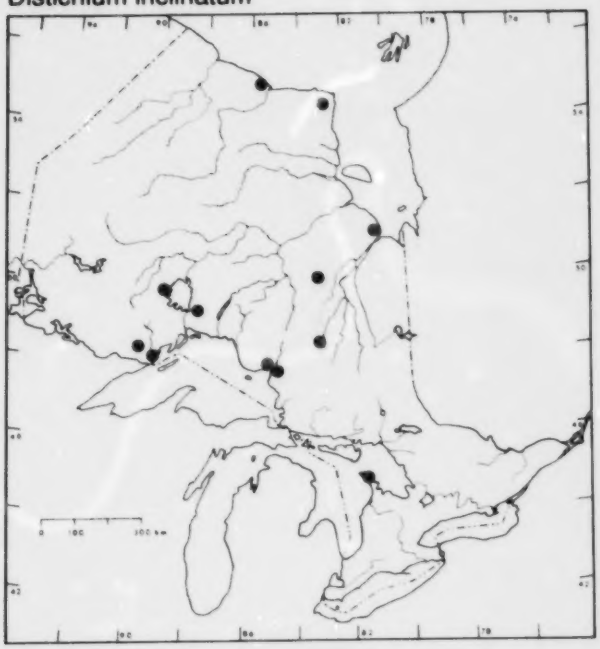
Diphyscium foliosum



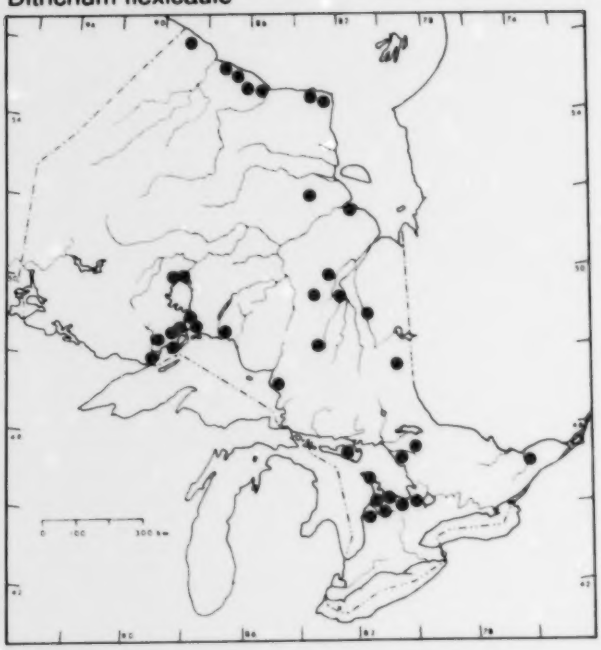
Distichium capillaceum



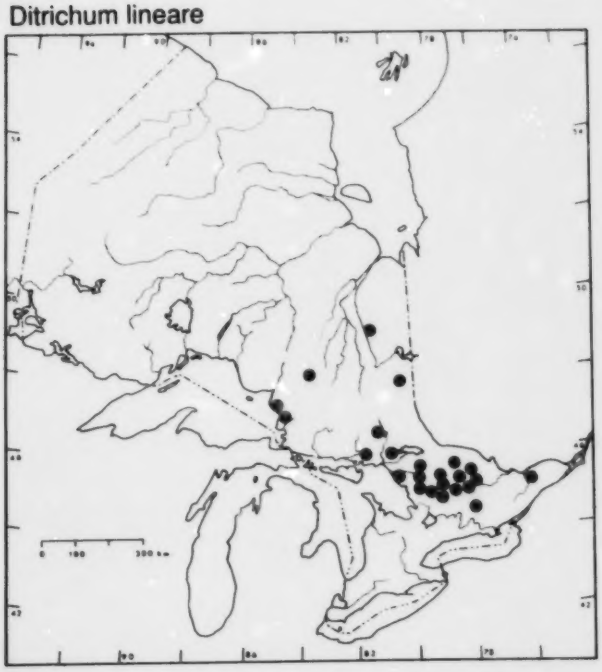
Distichium inclinatum



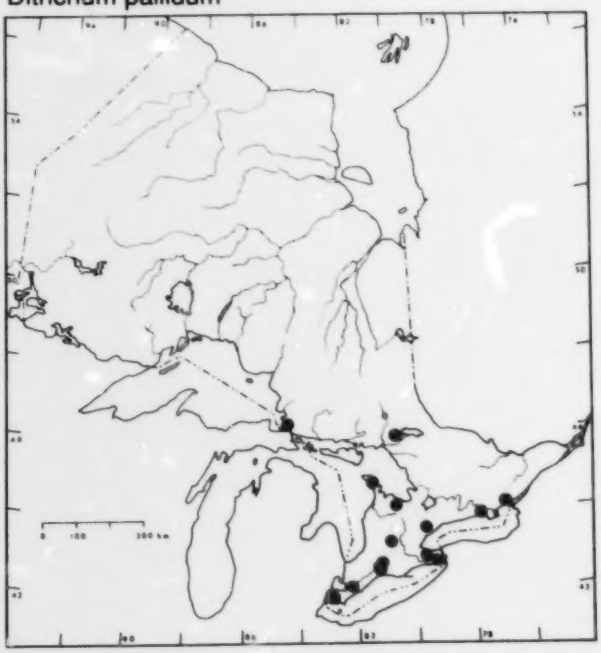
Ditrichum flexicaule



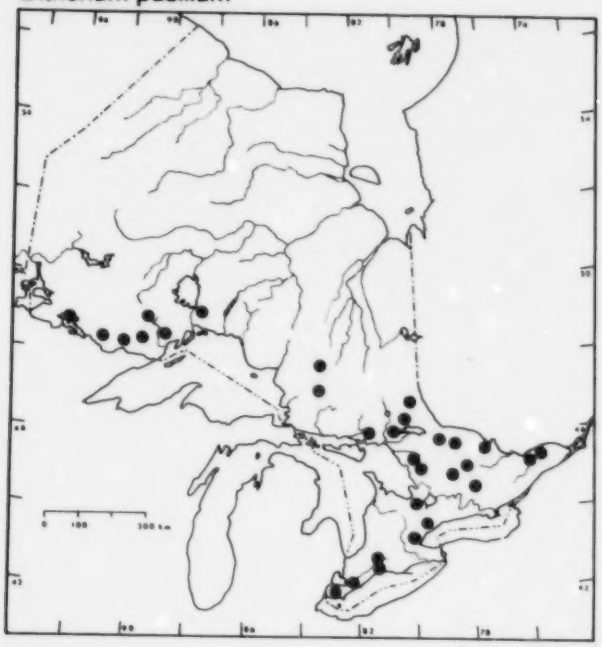
Ditrichum lineare



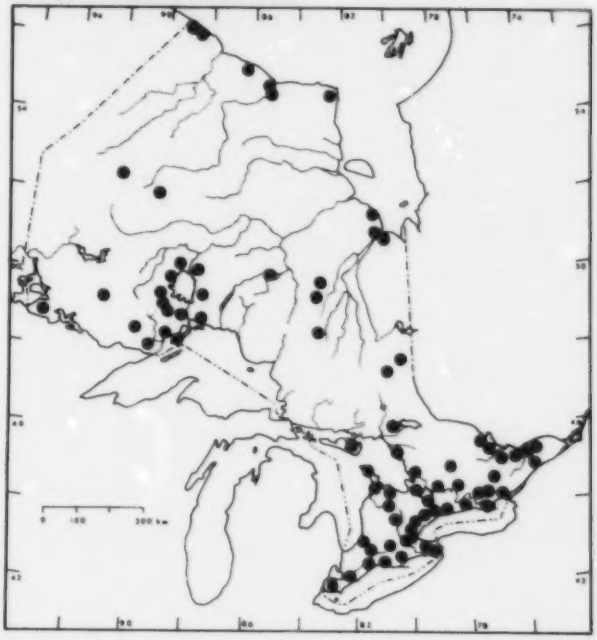
Ditrichum pallidum



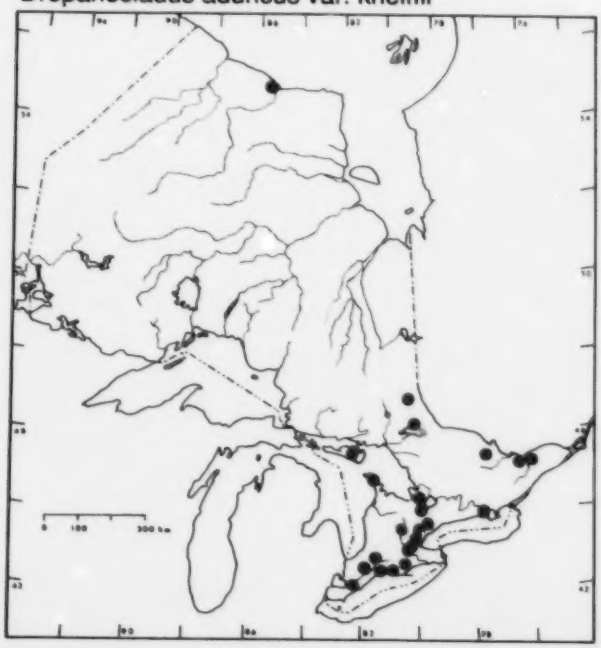
Ditrichum pusillum



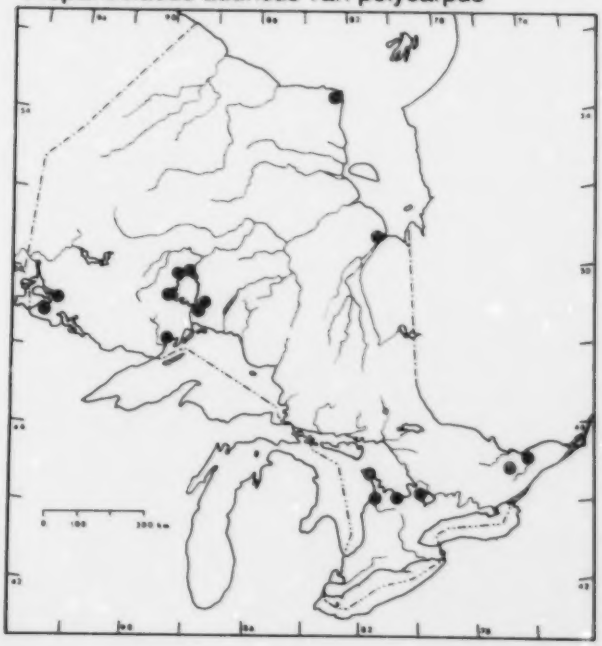
Drepanocladus aduncus



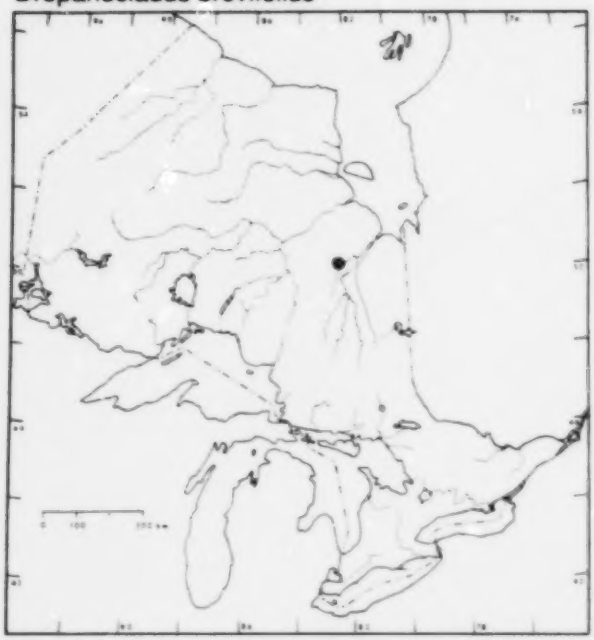
Drepanocladus aduncus var. kneiffii



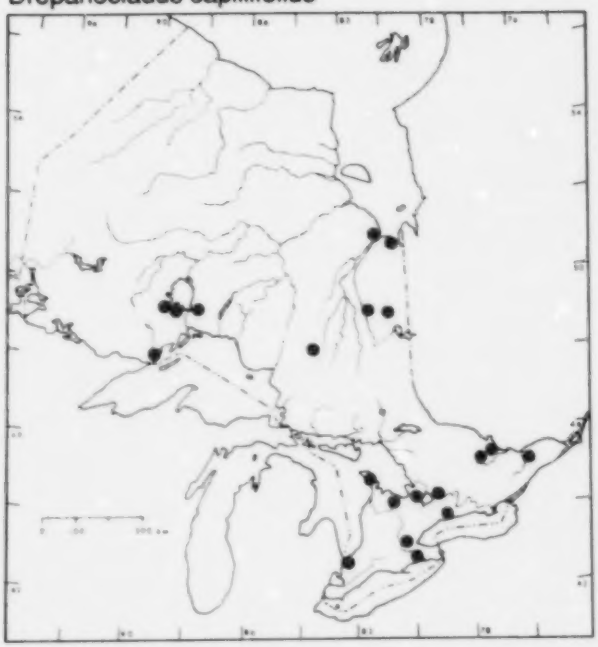
Drepanocladus aduncus var. polycarpus



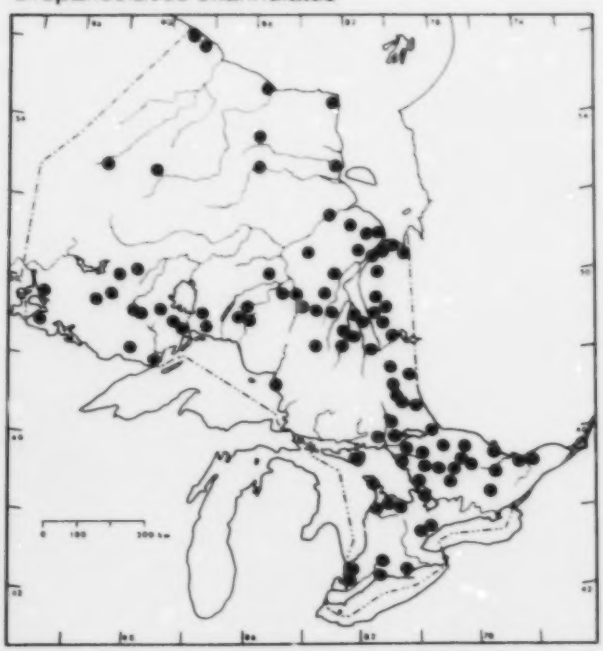
Drepanocladus brevifolius



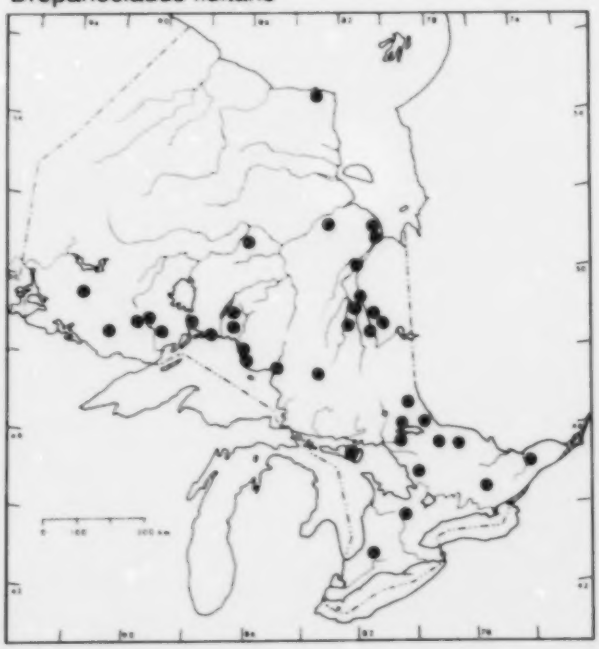
Drepanocladus capillifolius



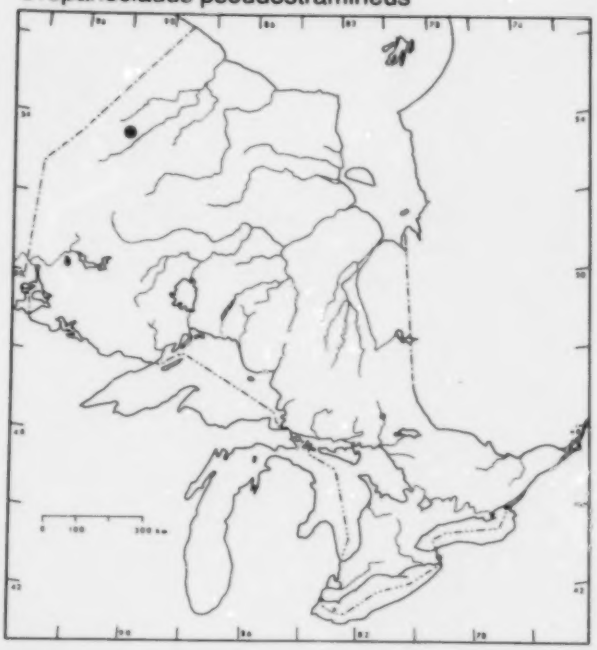
Drepanocladus exannulatus



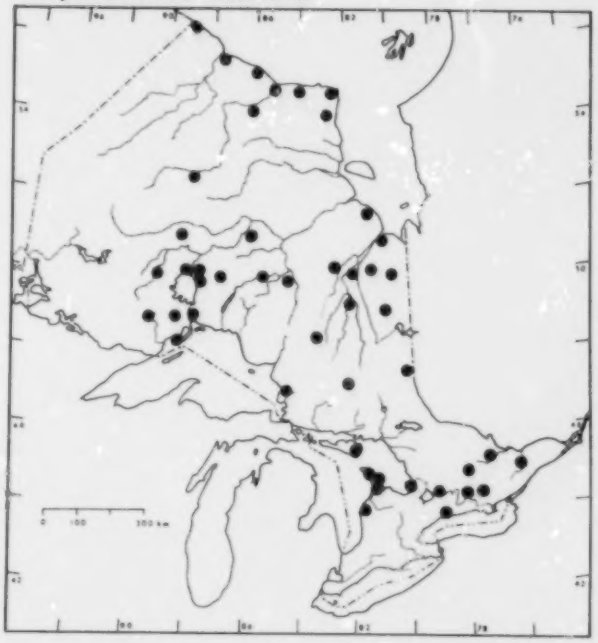
Drepanocladus fluitans



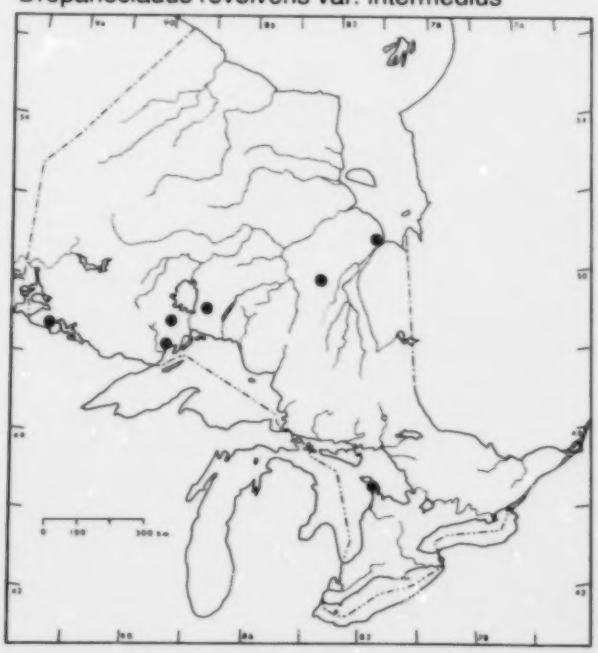
Drepanocladus pseudostramineus



Drepanocladus revolvens



Drepanocladus revolvens var. intermedius



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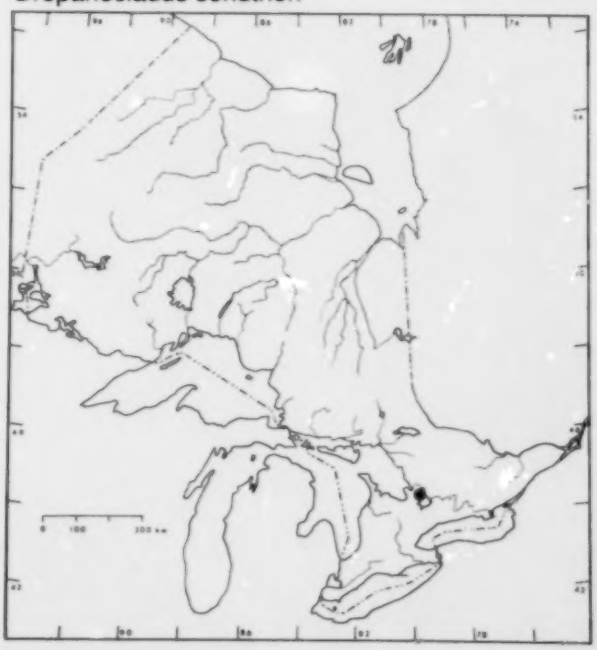

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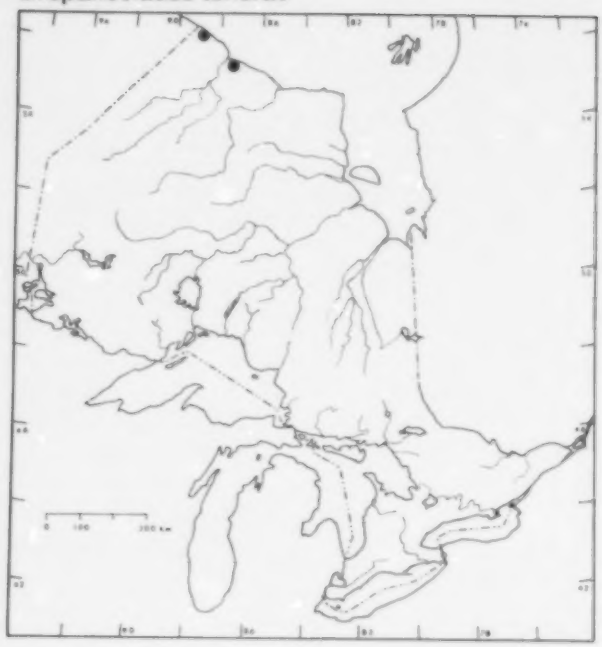
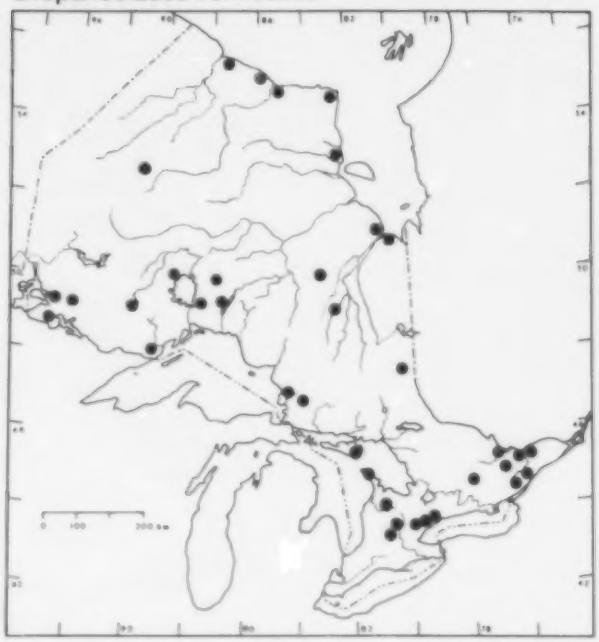
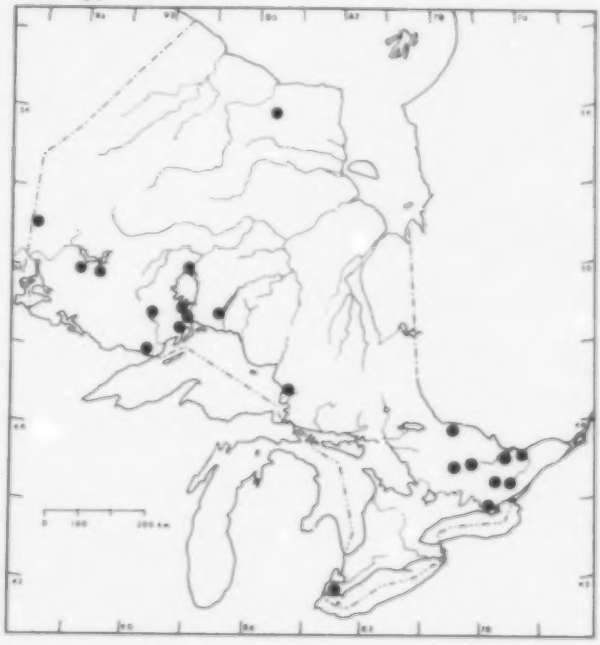


Drepanocladus vernicosus

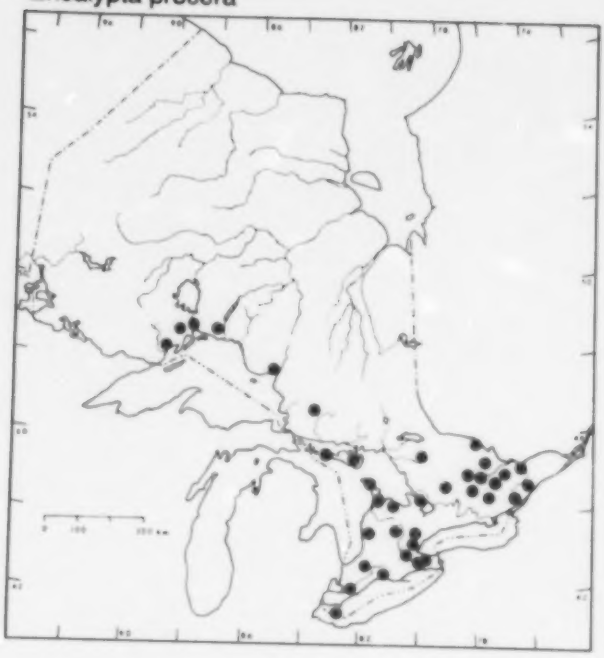


Drummondia prorepens

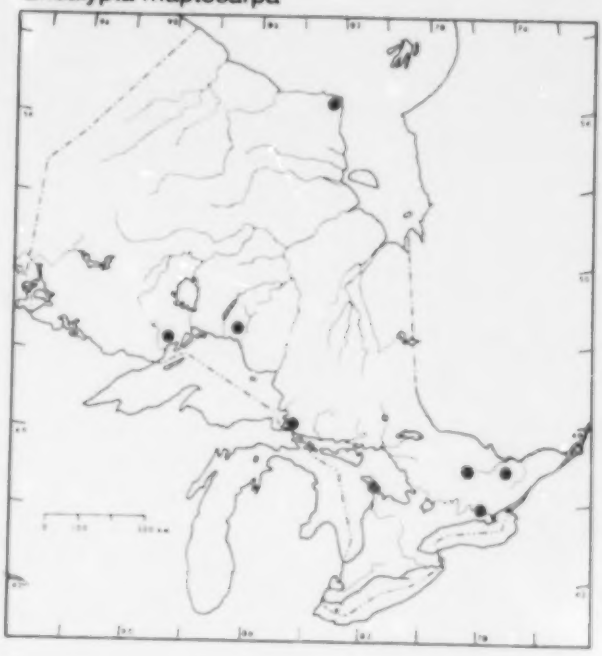
Encalypta ciliata



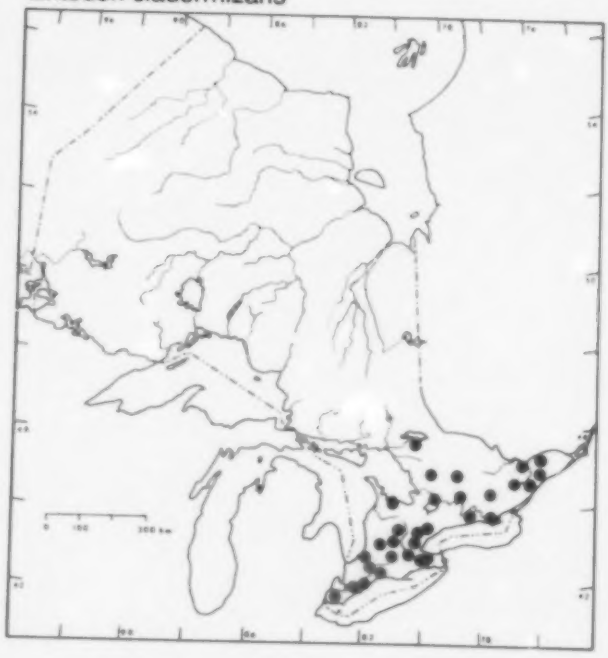
Encalypta procera



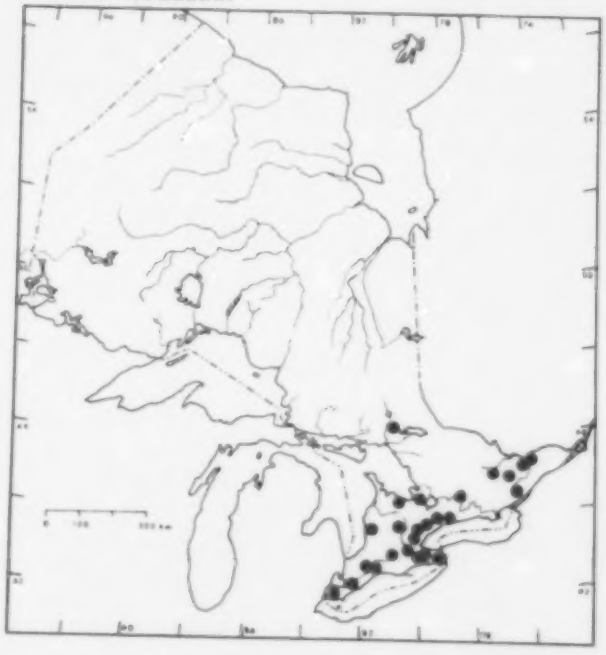
Encalypta rhaptocarpa



Entodon cladorrhizans



Entodon seductrix



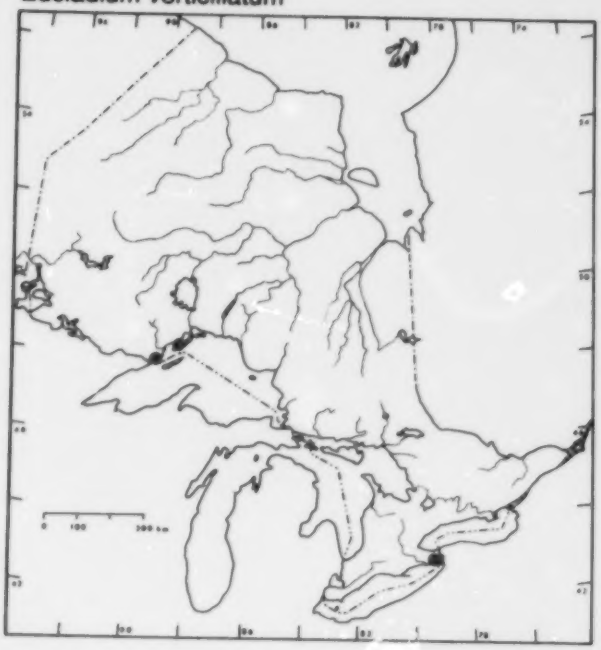
Ephemerum cohaerens

Ephemerum crassinervium

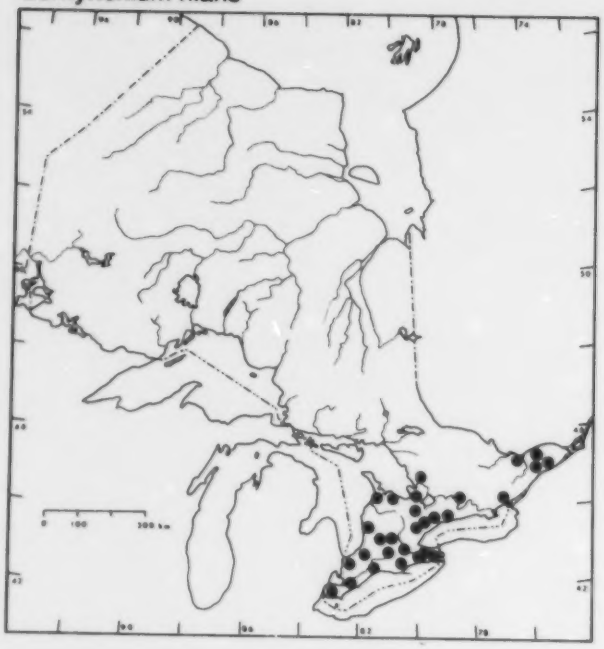
Ephemerum serratum

Ephemerum spinulosum

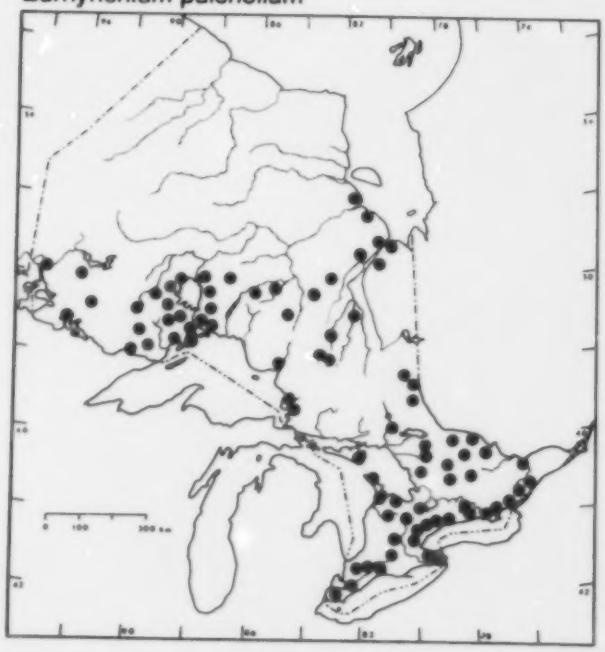
Eucladium verticillatum



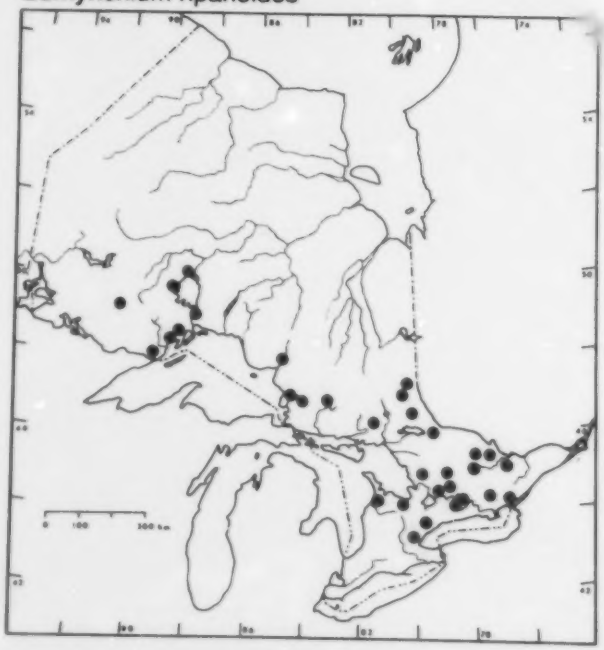
Eurhynchium hians



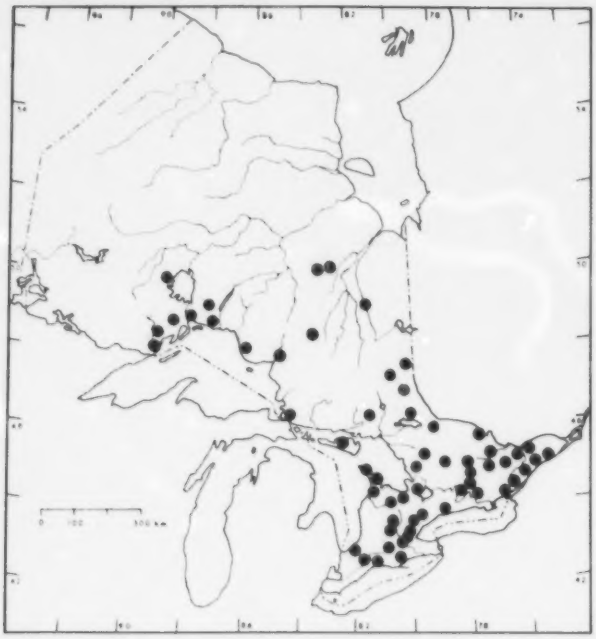
Eurhynchium pulchellum



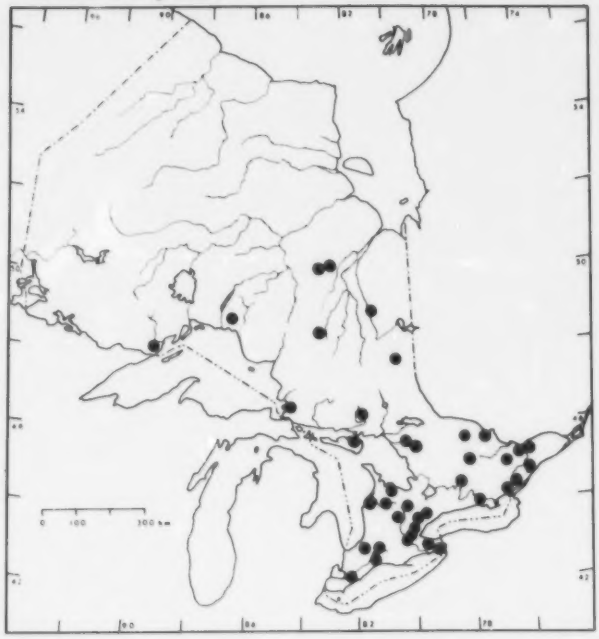
Eurhynchium riparioides



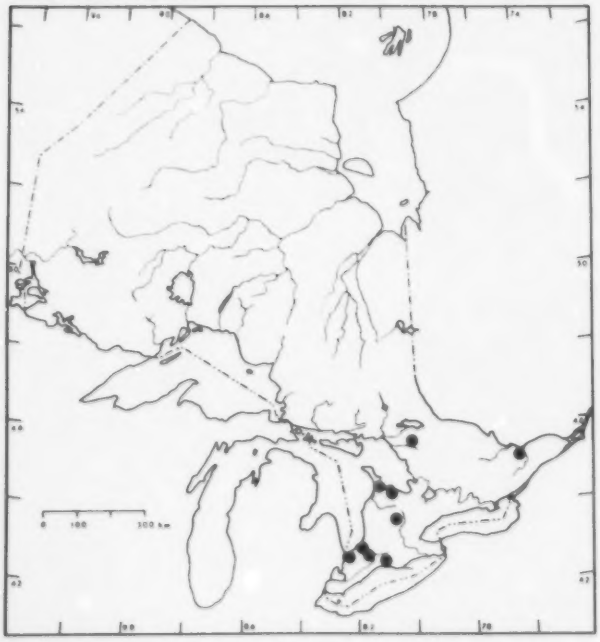
Fissidens adianthoides



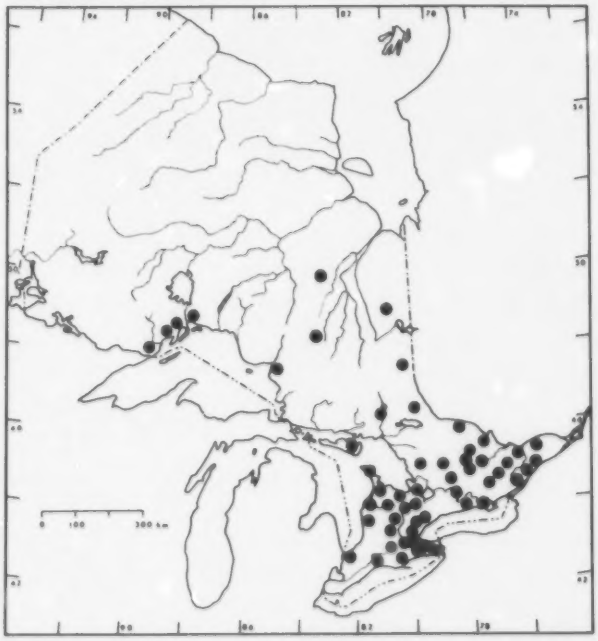
Fissidens bryoides



Fissidens bushii

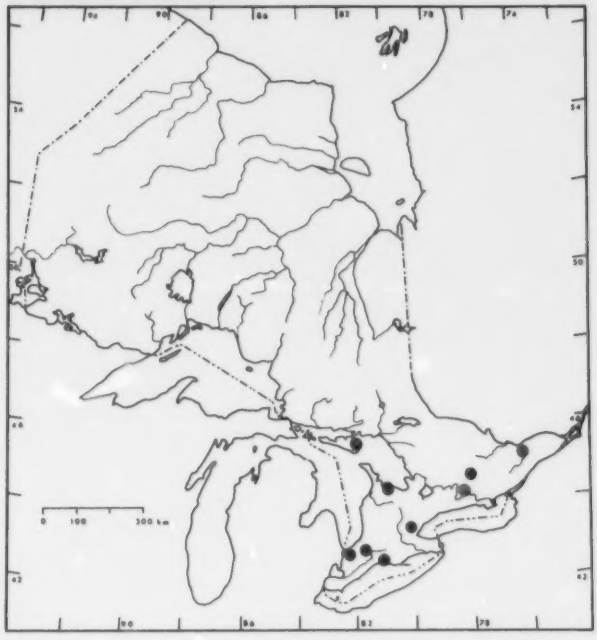


Fissidens dubius

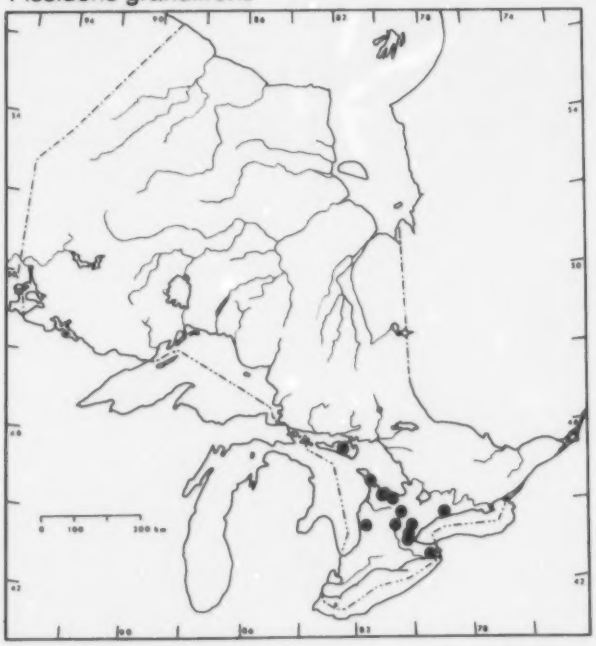


Fissidens exilis

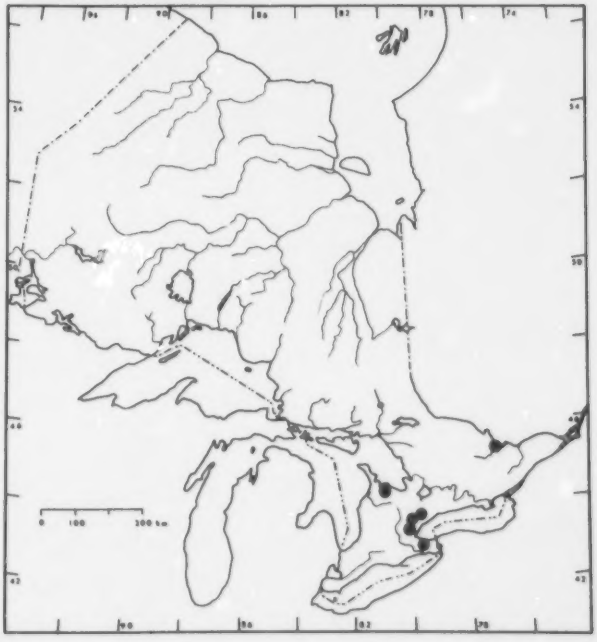
Fissidens fontanus



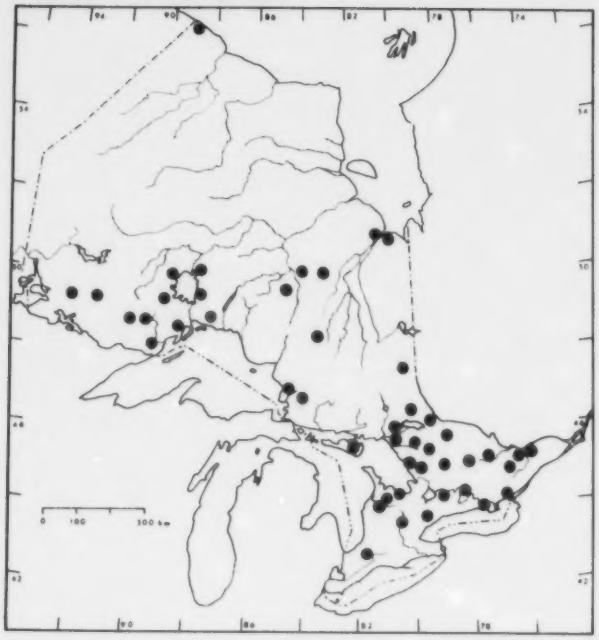
Fissidens grandifrons



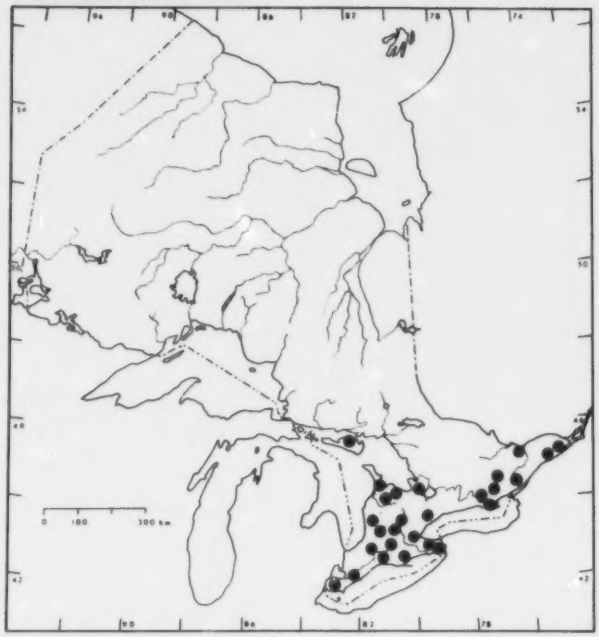
Fissidens obtusifolius



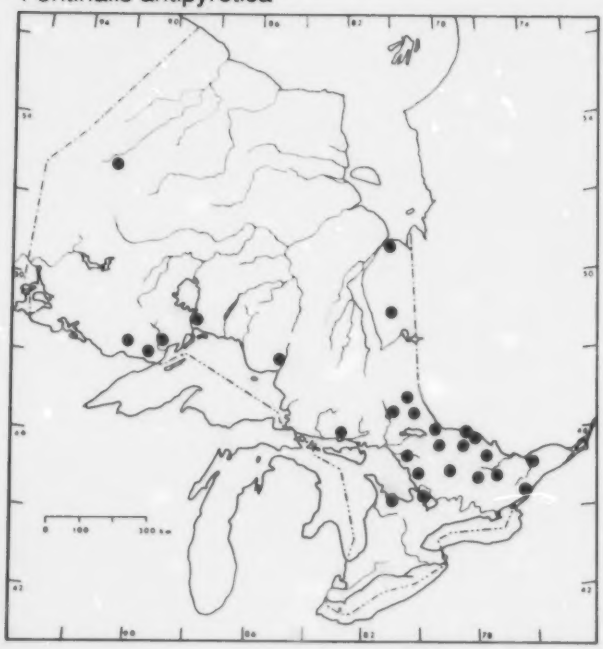
Fissidens osmundioides



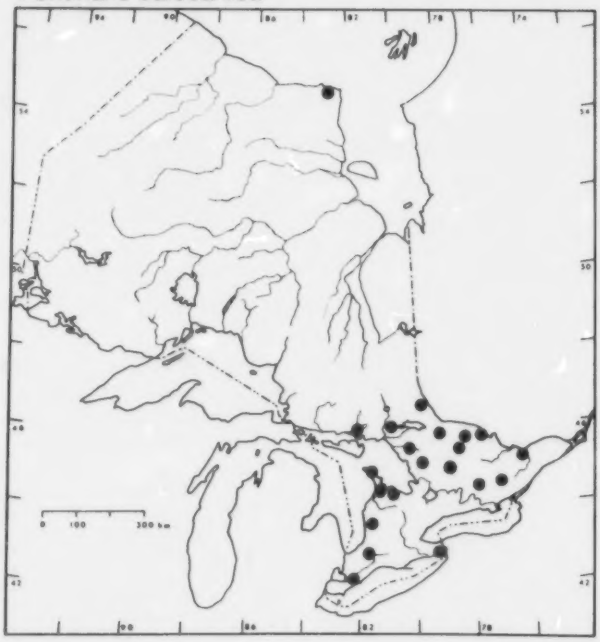
Fissidens taxifolius



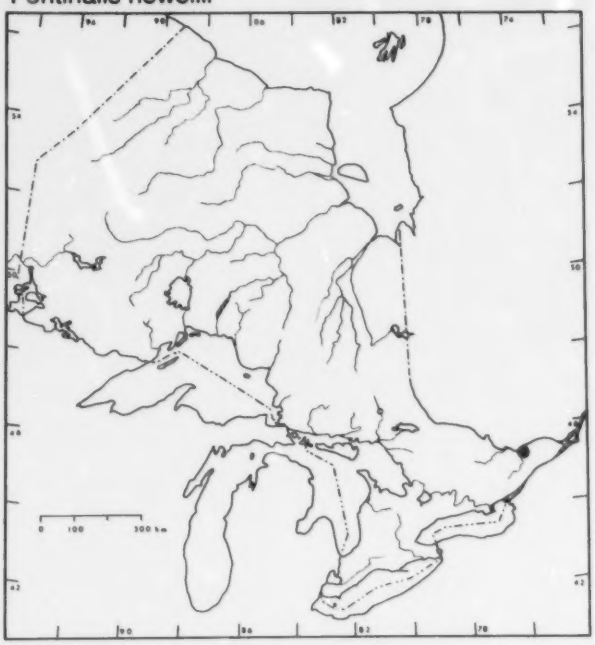
Fontinalis antipyretica



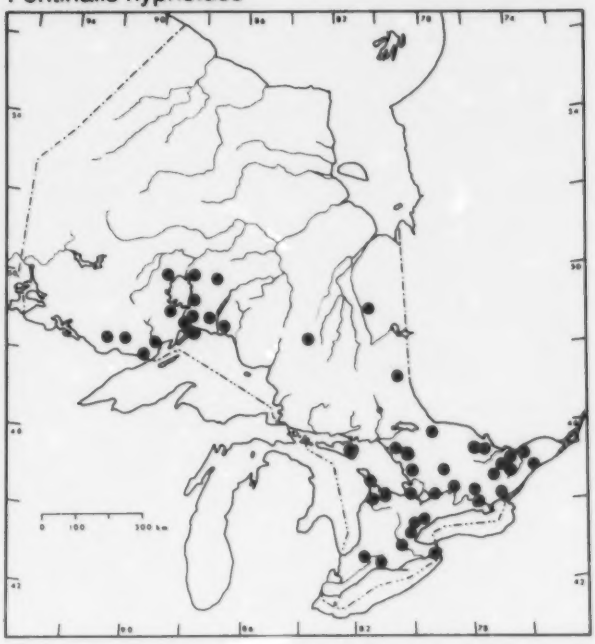
Fontinalis dalecarlica



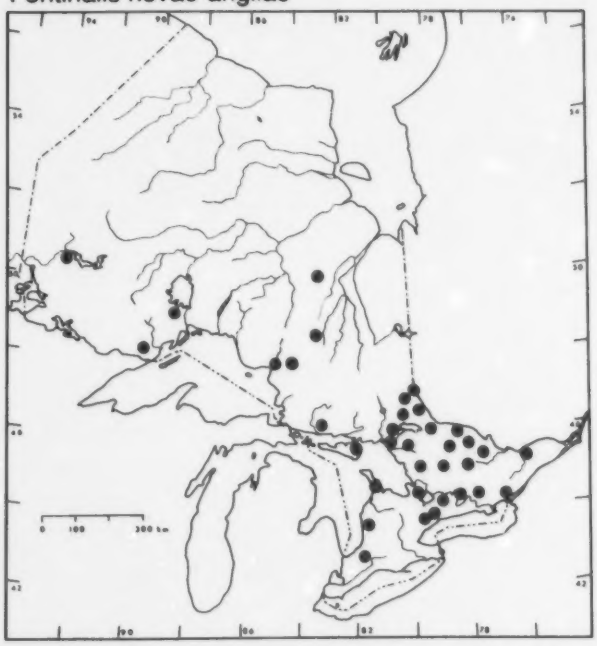
Fontinalis howellii



Fontinalis hypnoides



Fontinalis novae-angliae



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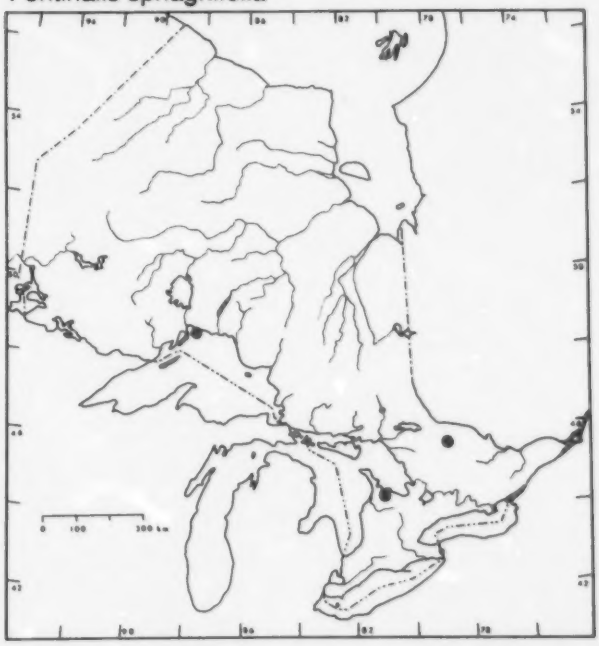

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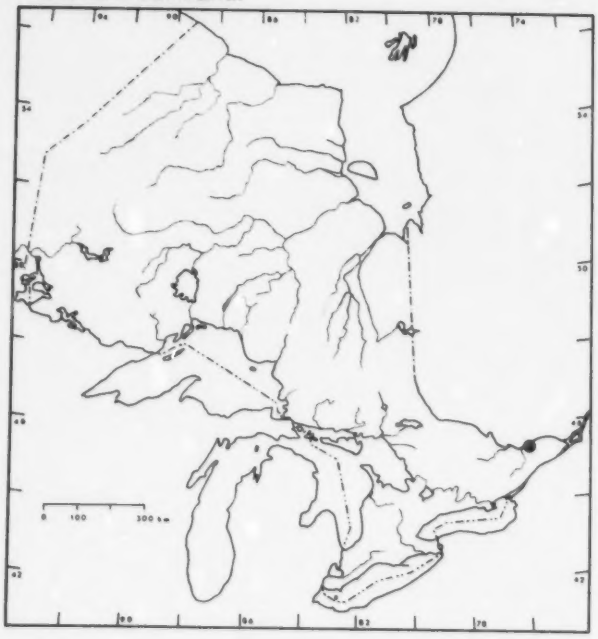
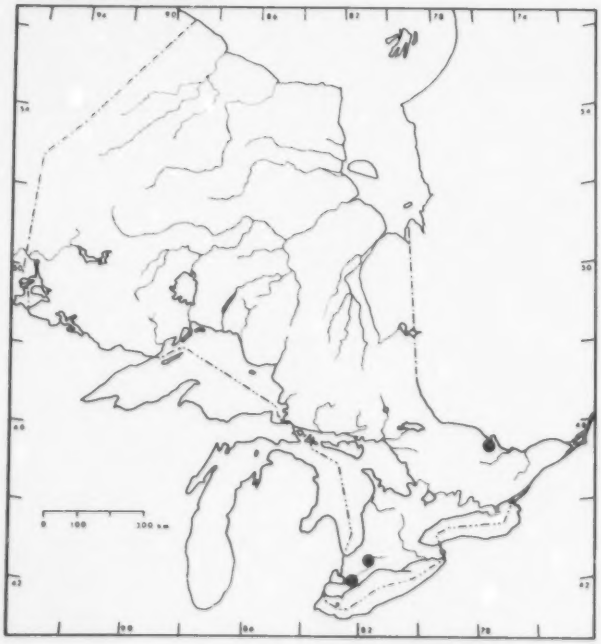
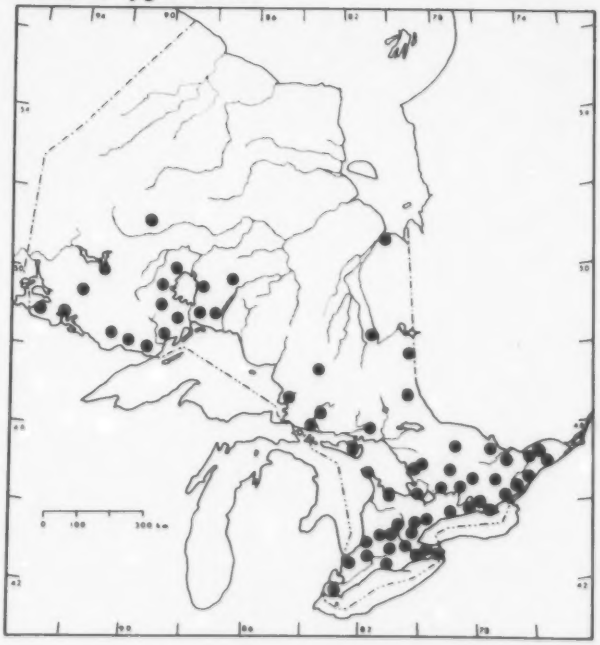


Forsstroemia trichomitria

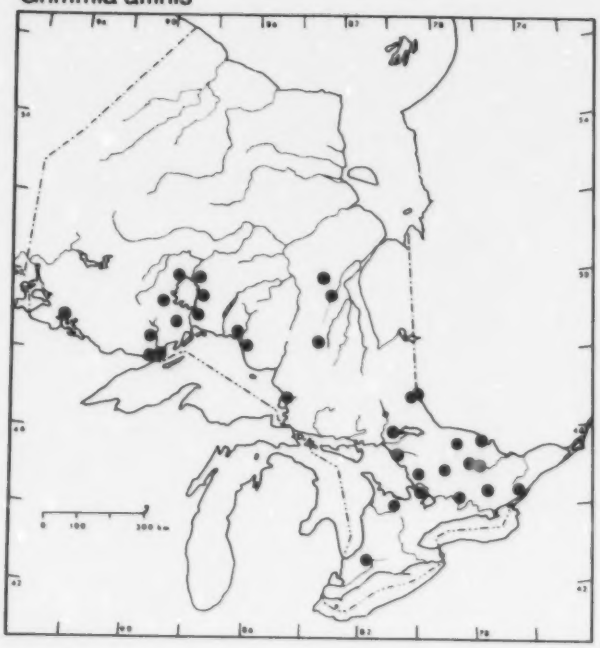
Funaria flavicans



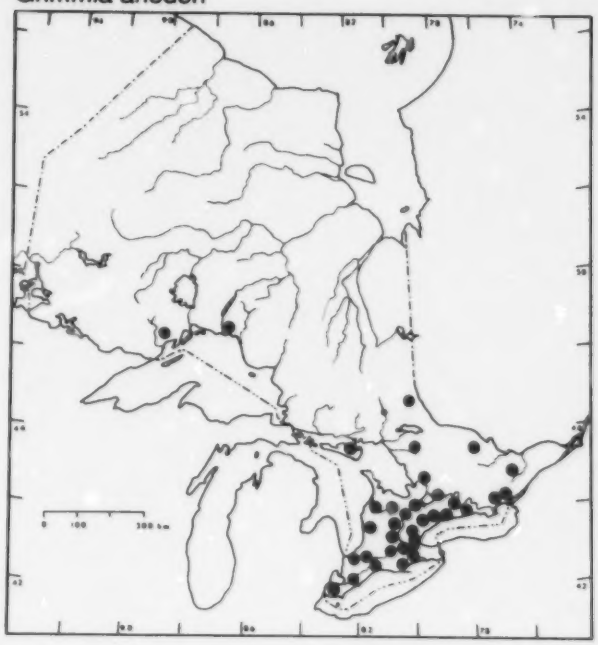
Funaria hygrometrica



Grimmia affinis

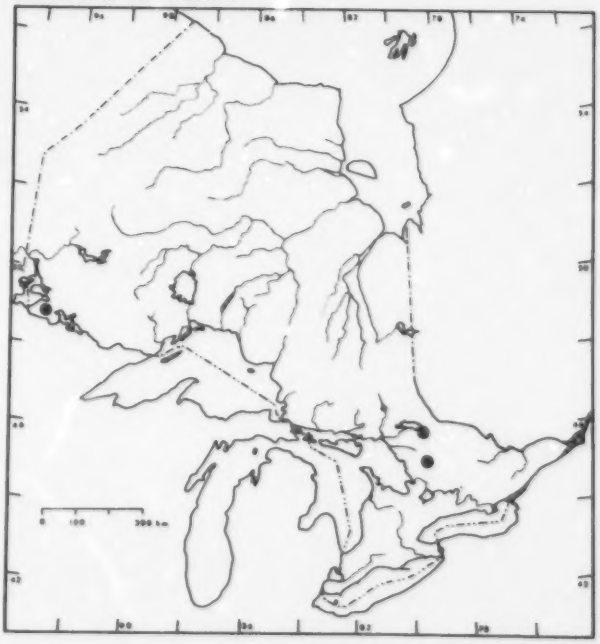


Grimmia anodon

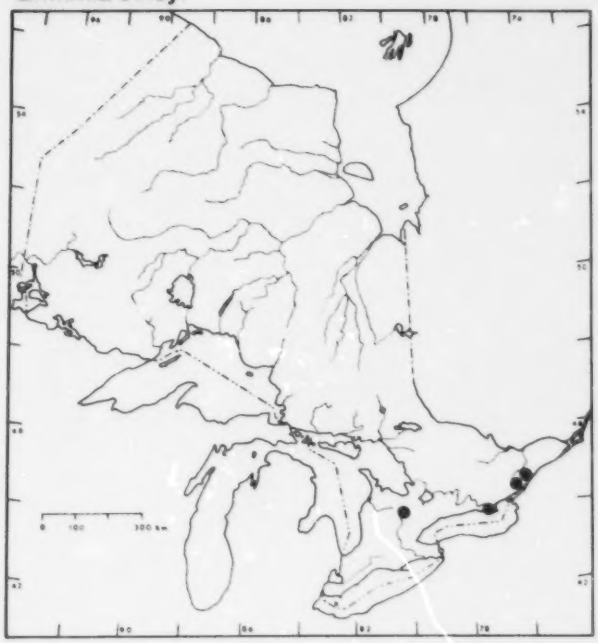


Grimmia anomala

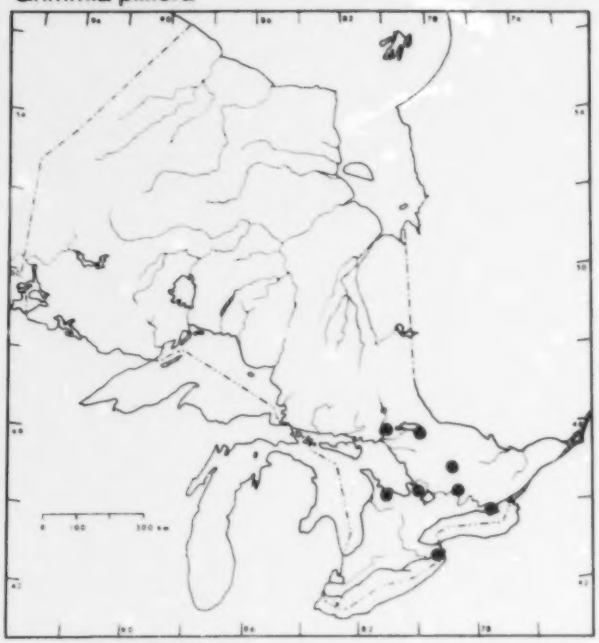
Grimmia hermannii



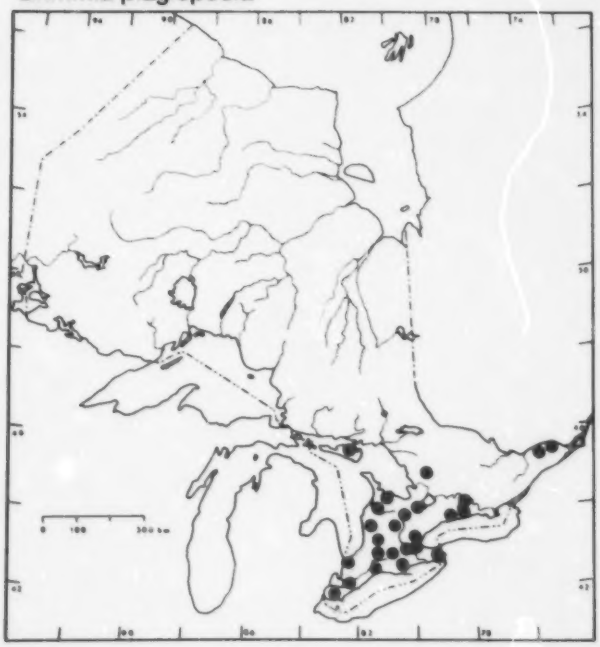
Grimmia olneyi



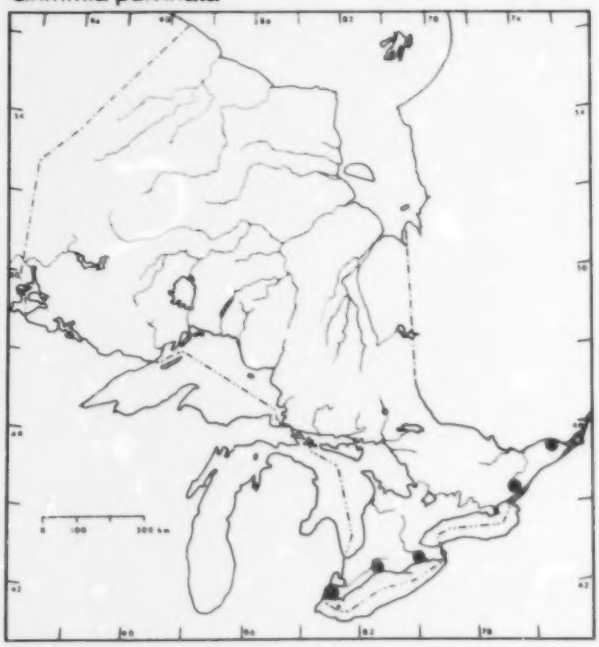
Grimmia pilifera



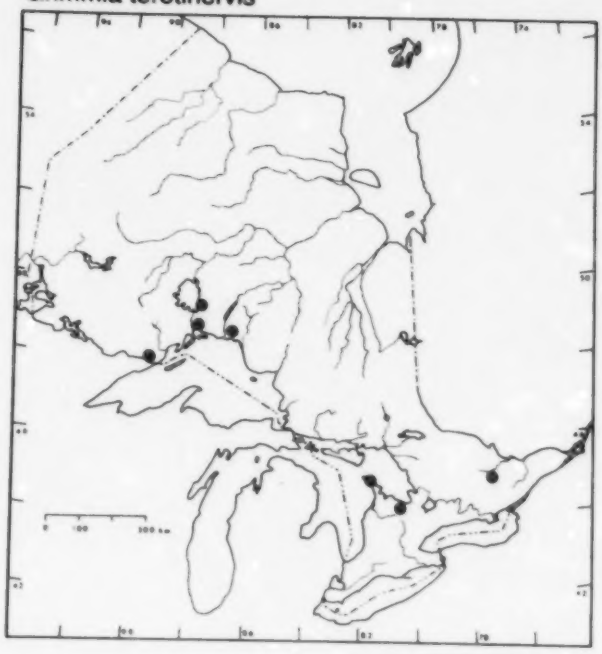
Grimmia plagiopodia



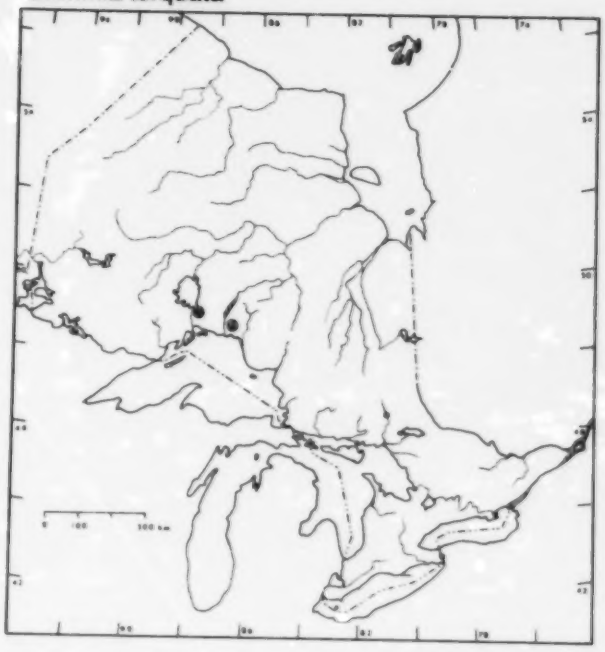
Grimmia pulvinata



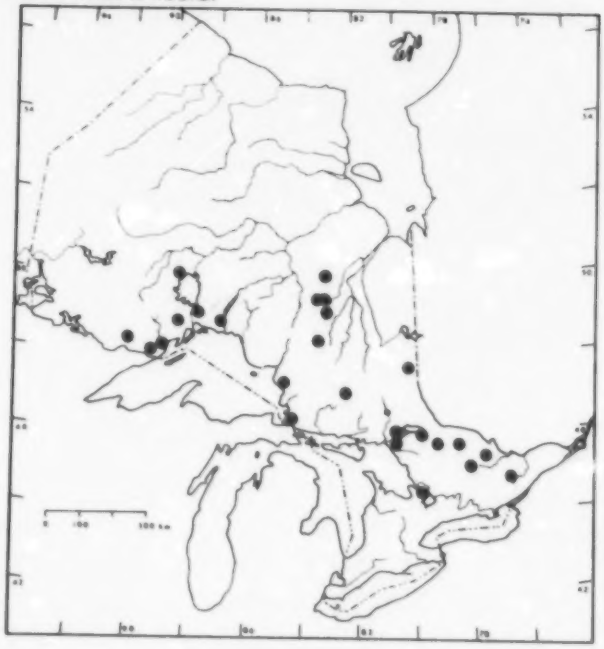
Grimmia teretinervis



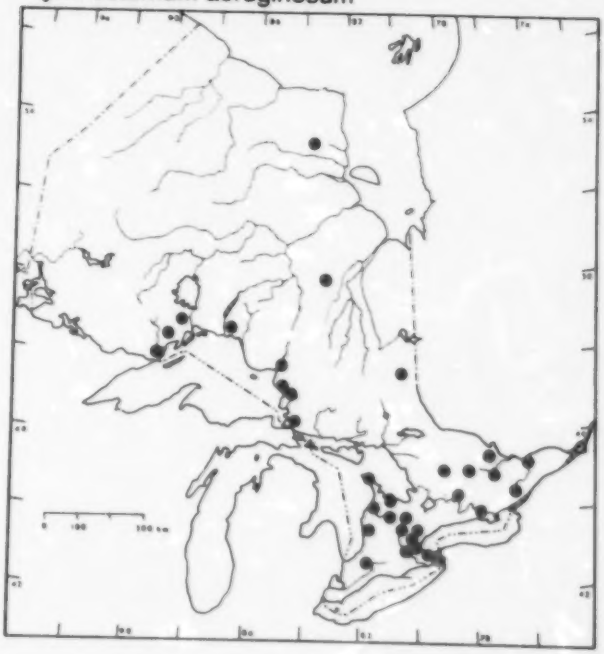
Grimmia torquata



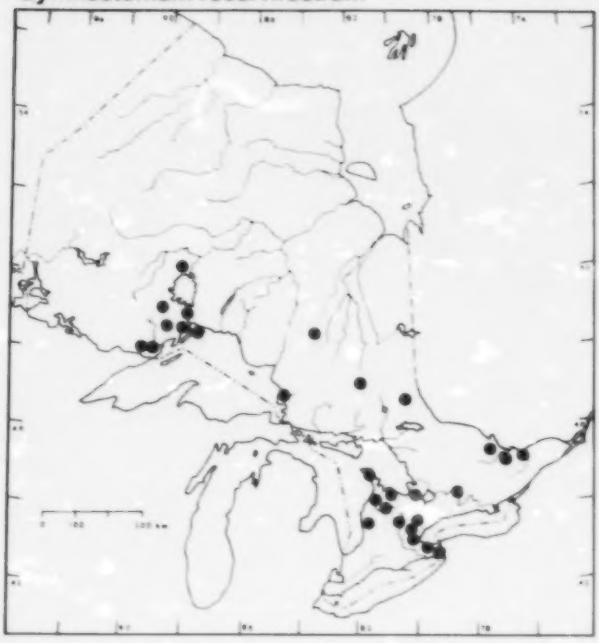
Grimmia unicolor



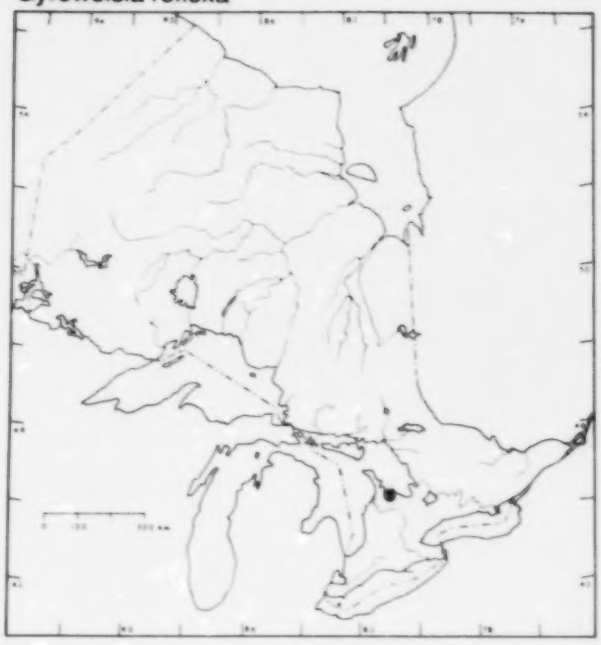
Gymnostomum aeruginosum



Gymnostomum recurvirostrum



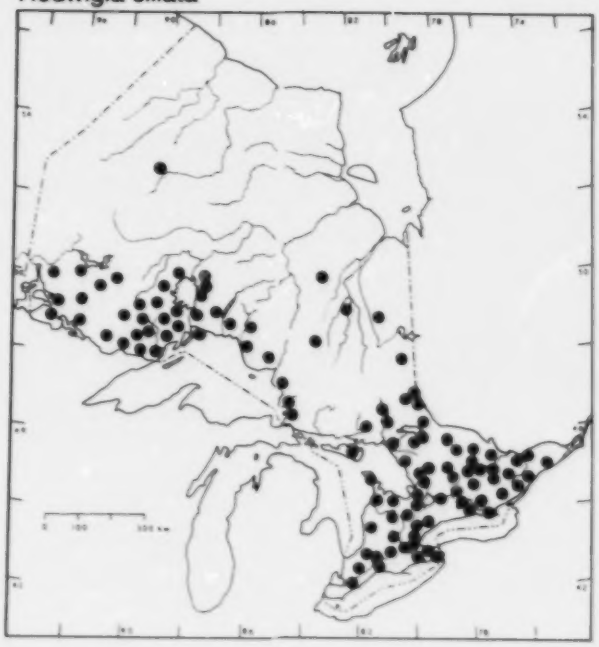
Gyroweisia reflexa



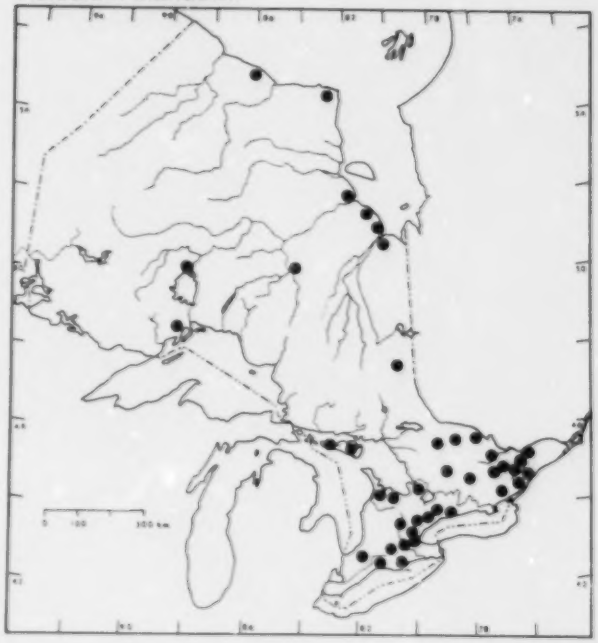
Gyroweisia tenuis

Haplohymenium triste

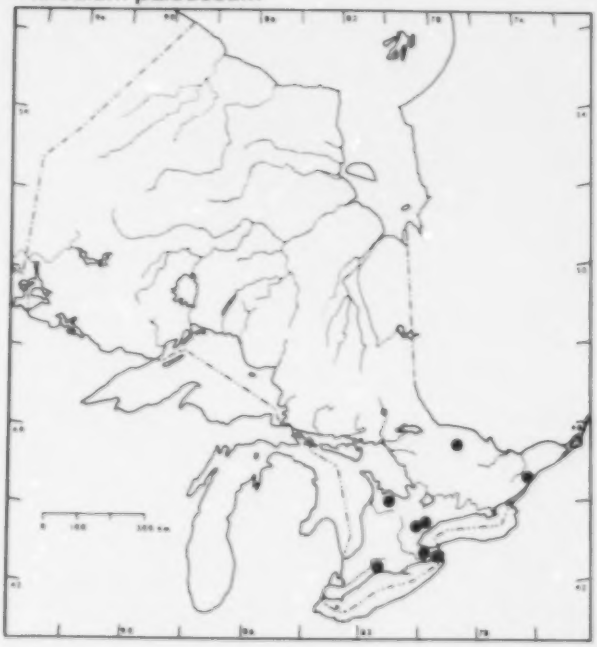
Hedwigia ciliata



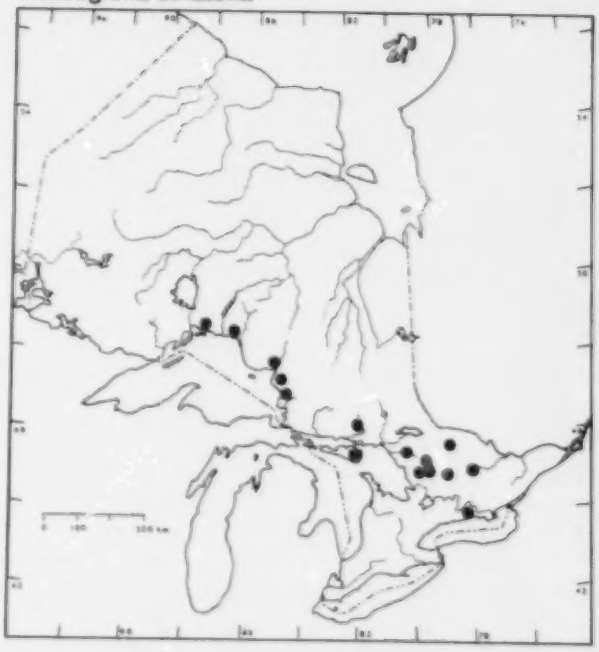
Helodium blandowii



Helodium paludosum



Herzogiella striatella



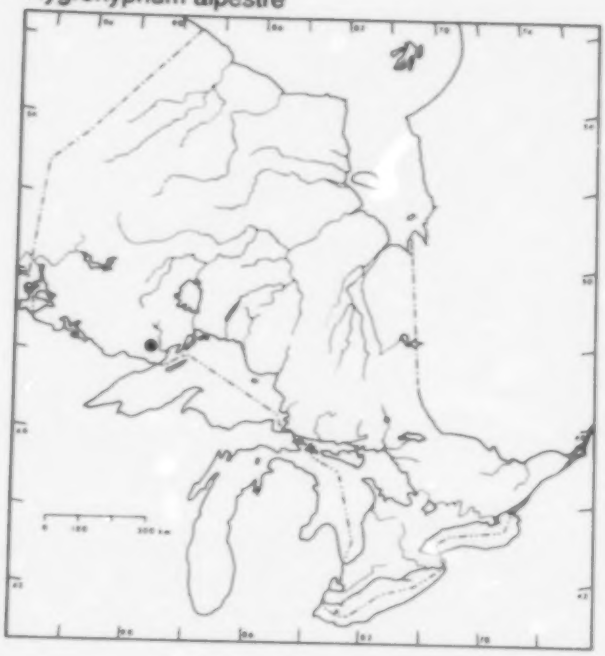
Herzogiella turfacea

Heterocladium dimorphum

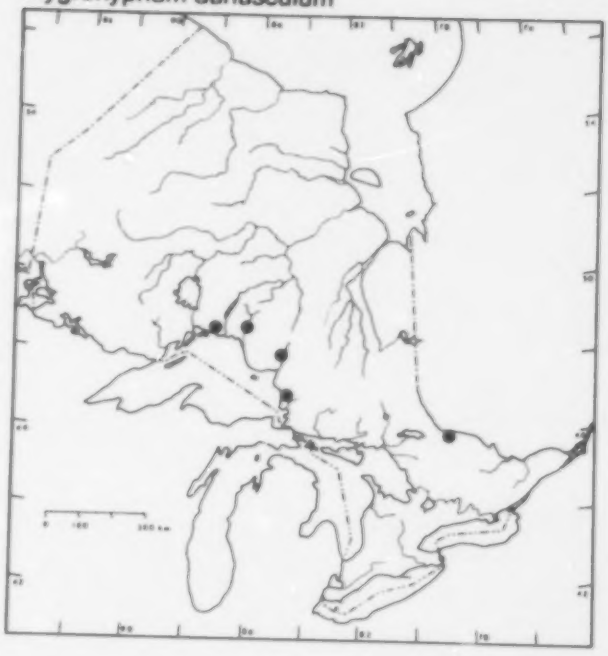
Homalia trichomanoides

Homomallium adnatum

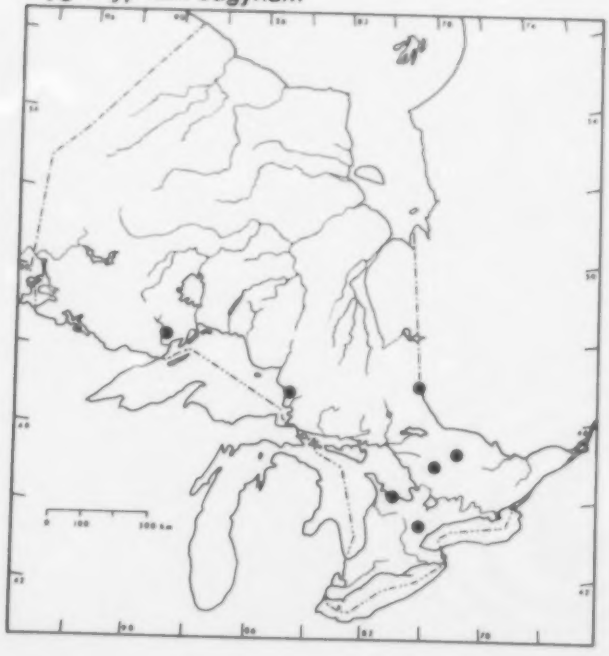
Hygrohypnum alpestre



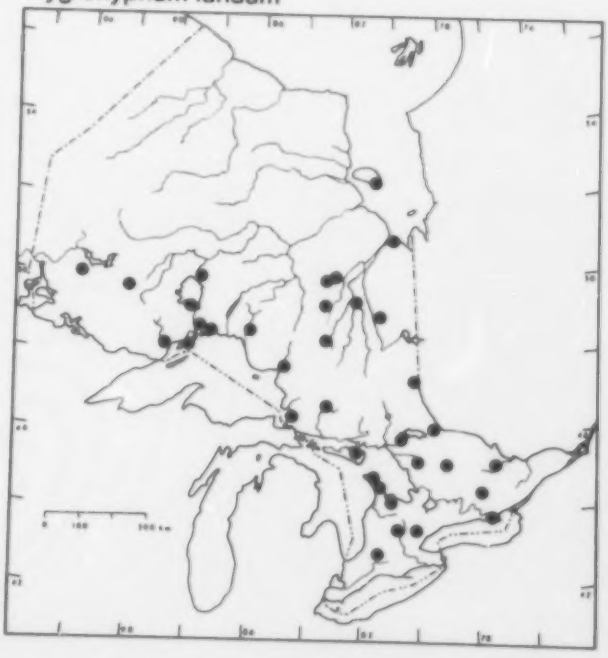
Hygrohypnum duriusculum



Hygrohypnum eugyrium

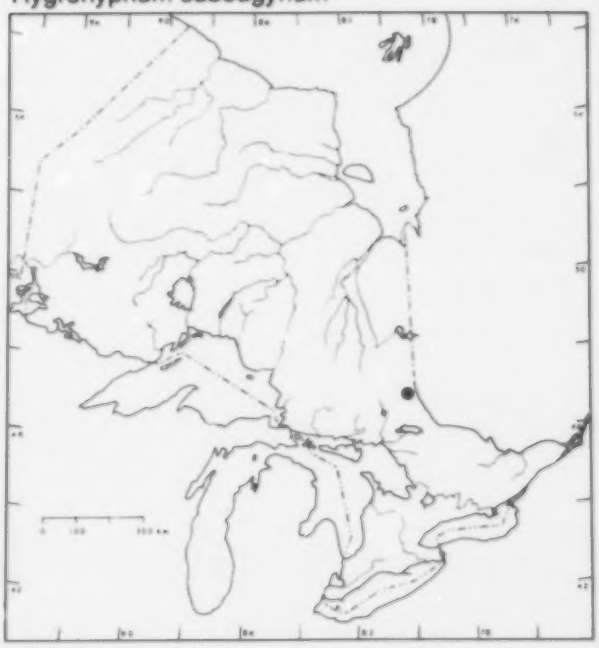


Hygrohypnum luridum

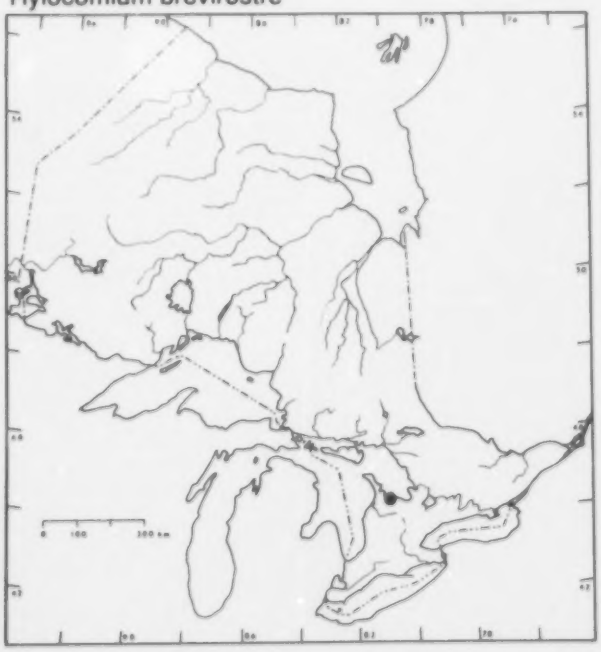


Hygrohypnum ochraceum

Hygrohypnum subeugyrium



Hylocomium brevirostre



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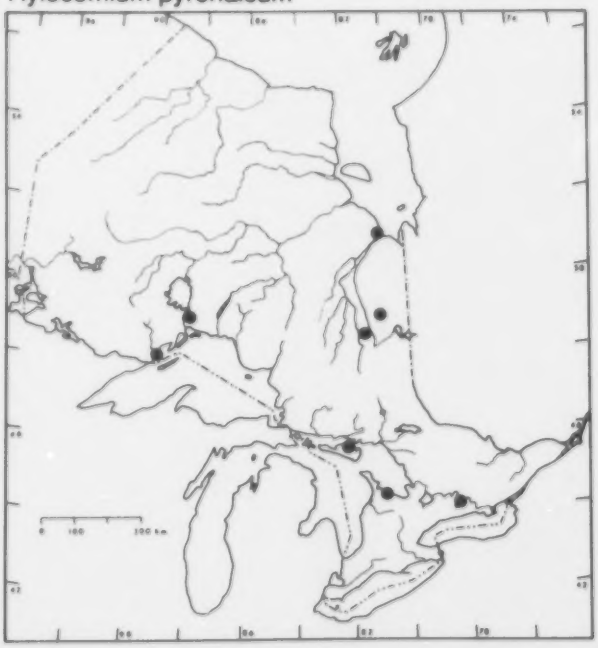

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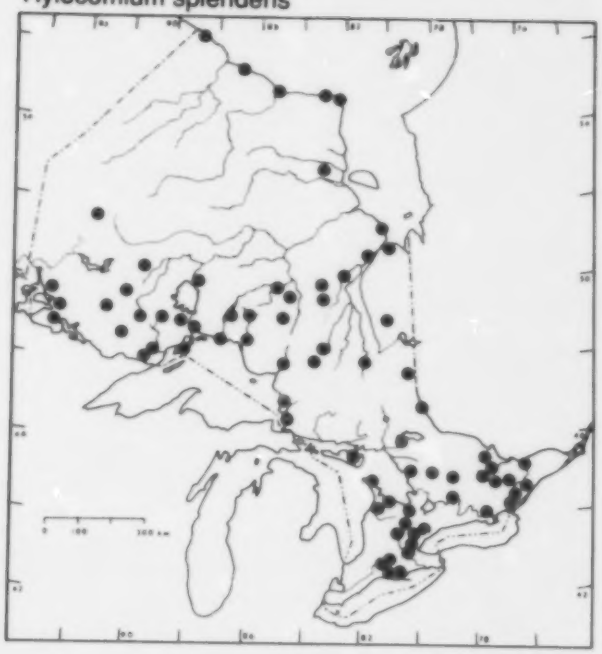
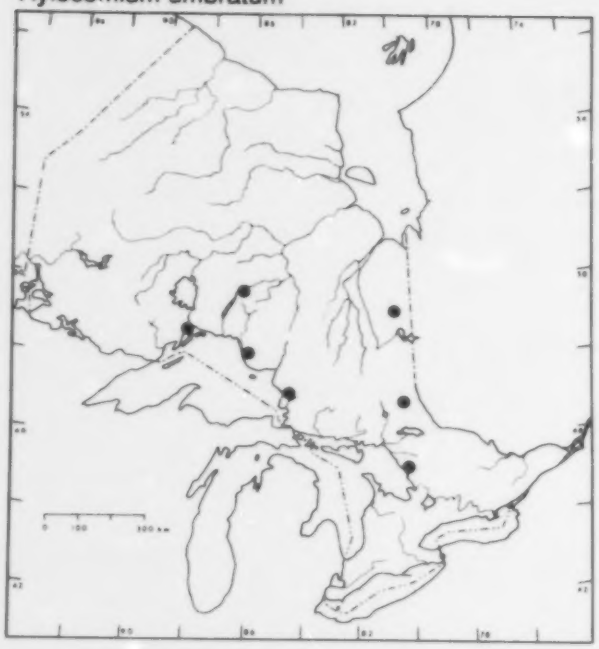
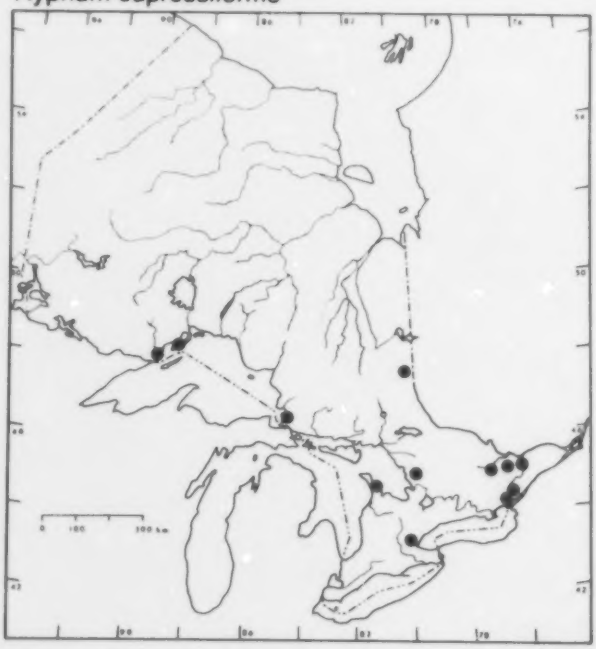


Hylocomium umbratum

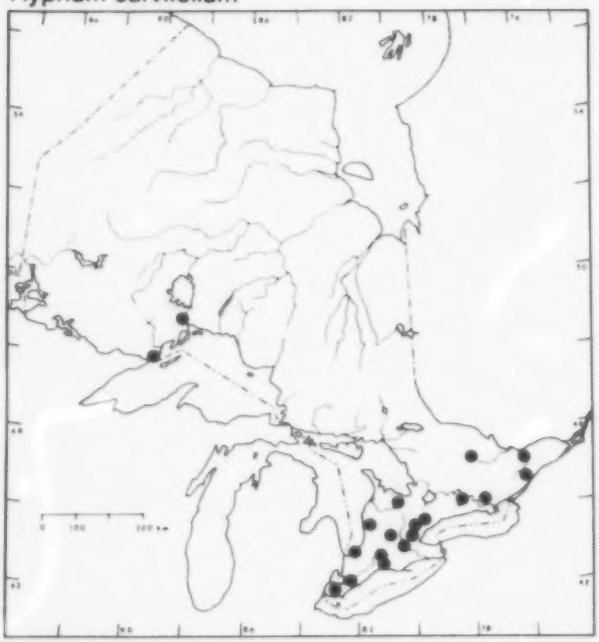


Hyophila involuta

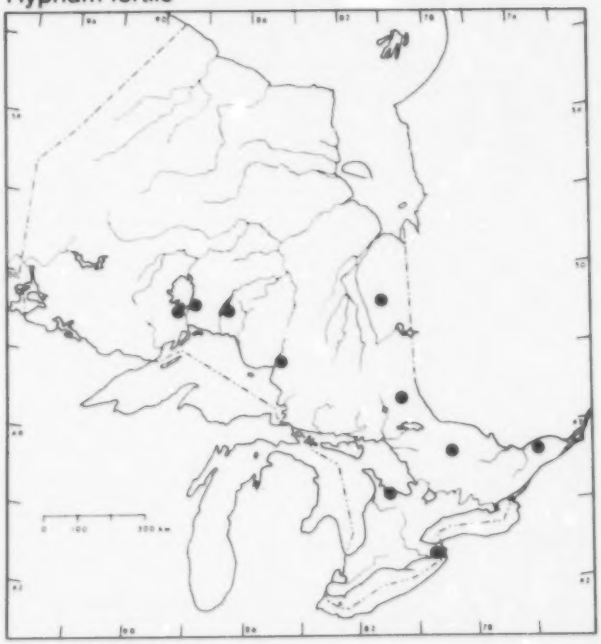
Hypnum cupressiforme



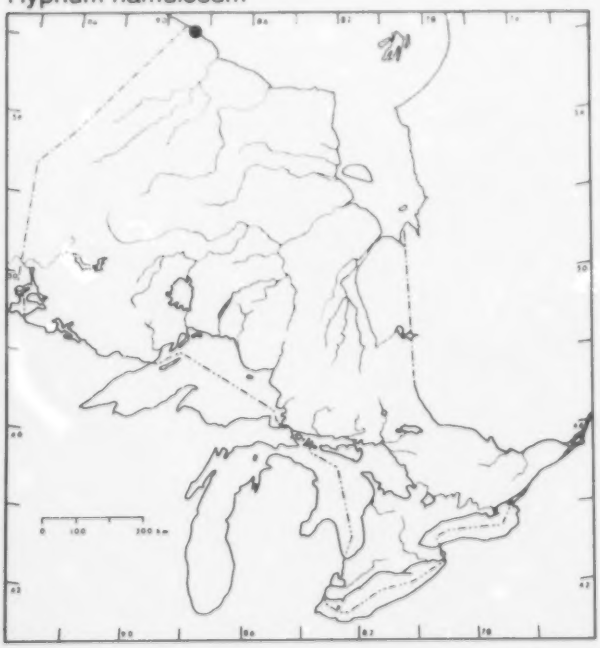
Hypnum curvifolium



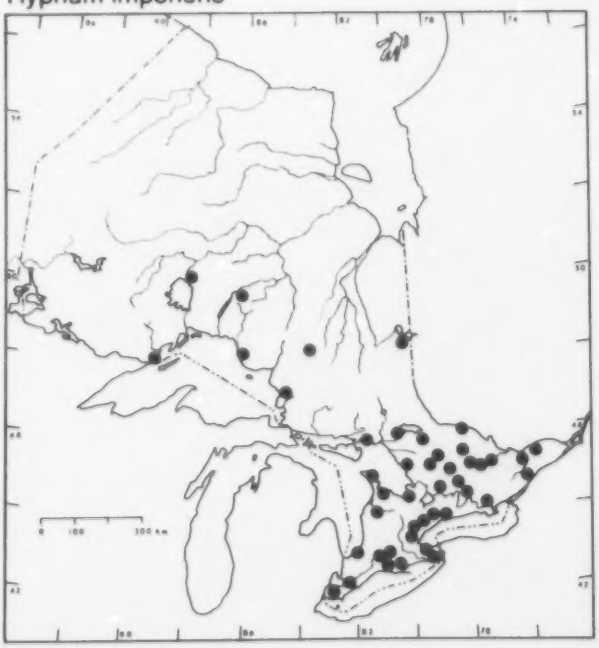
Hypnum fertile



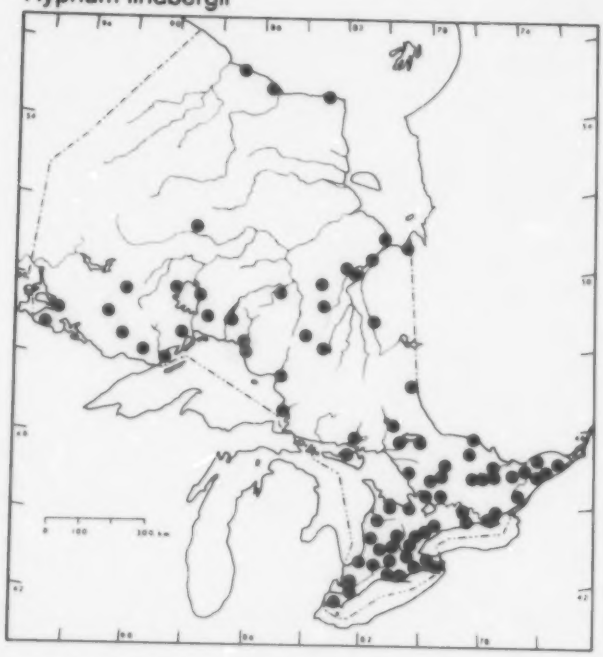
Hypnum hamulosum



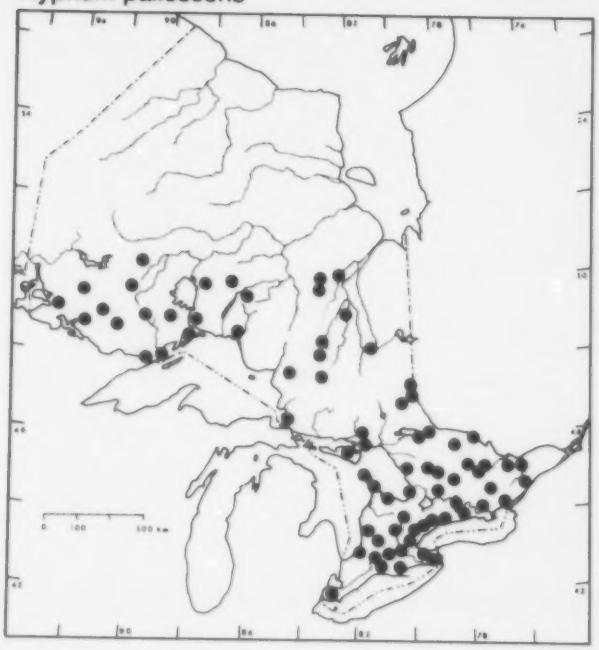
Hypnum imponens



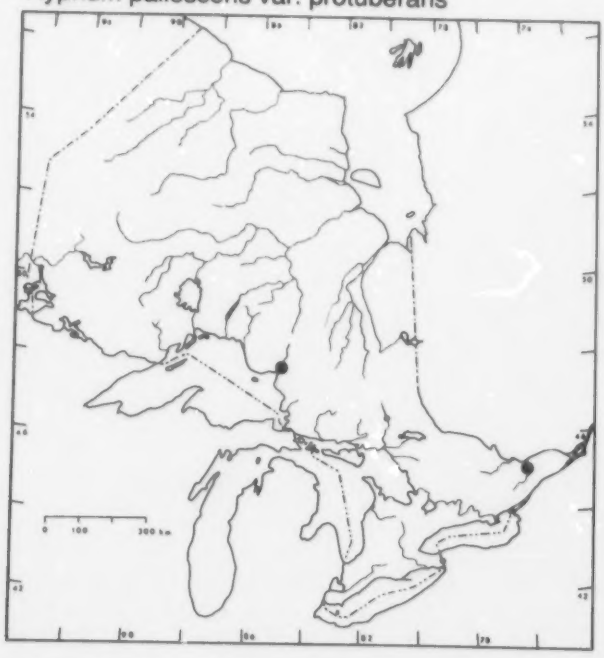
Hypnum lindbergii



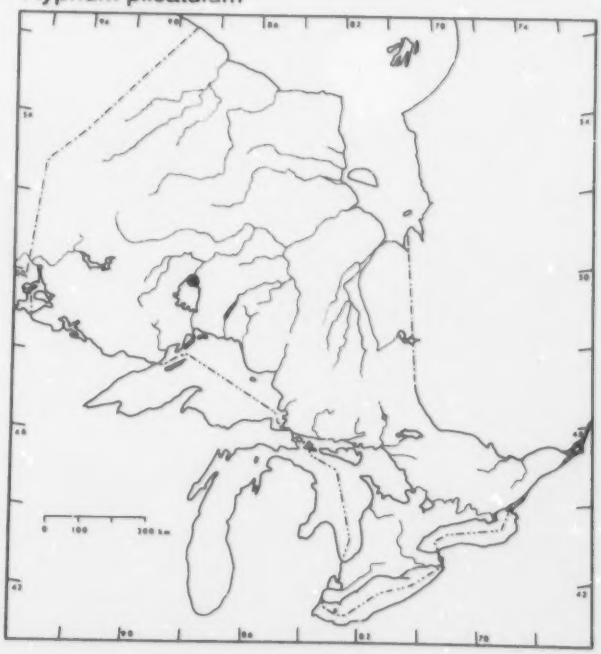
Hypnum pallescens



Hypnum pallescens var. protuberans



Hypnum plicatulum



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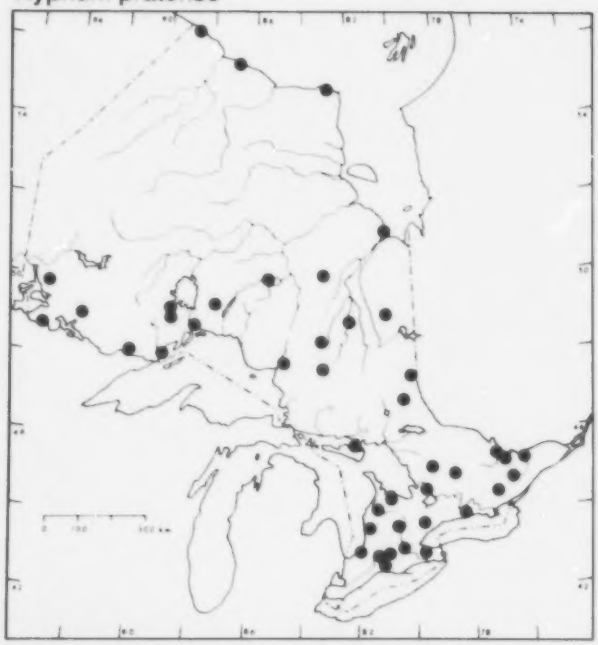
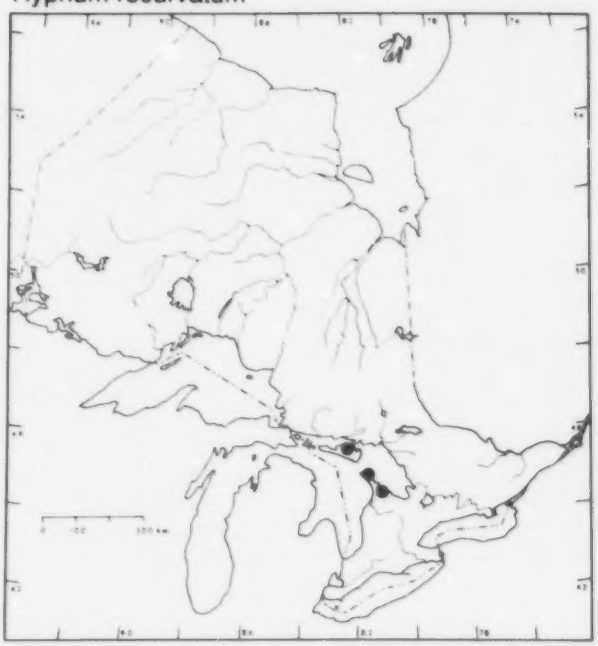
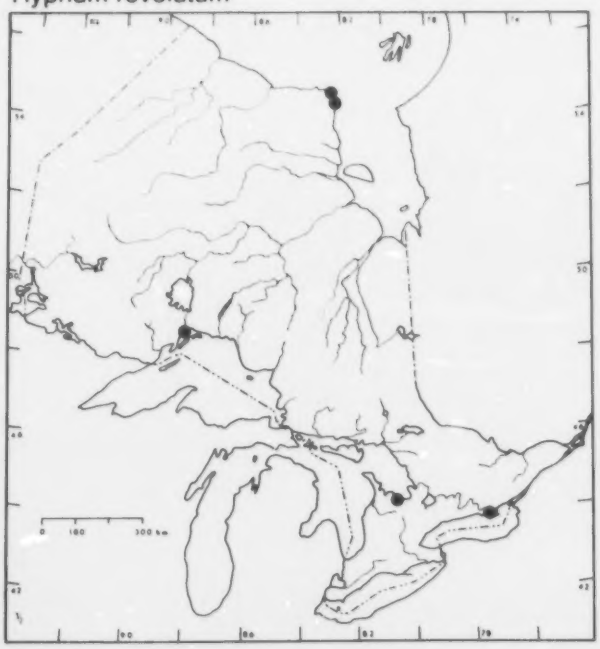


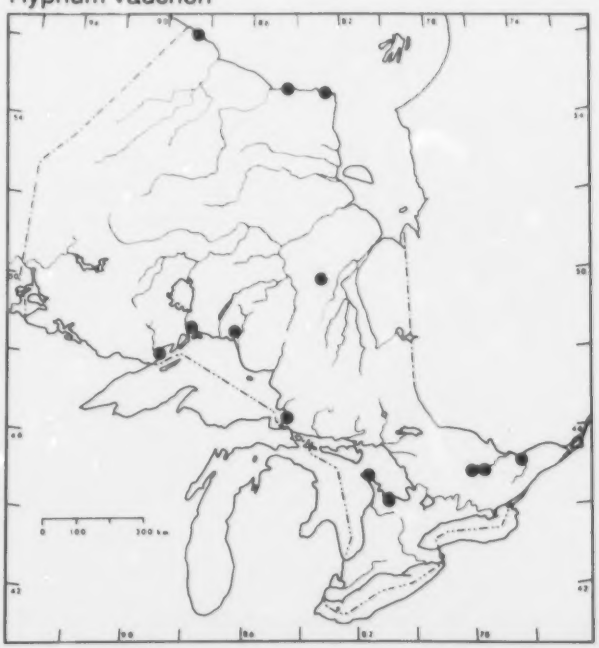
Hypnum recurvatum



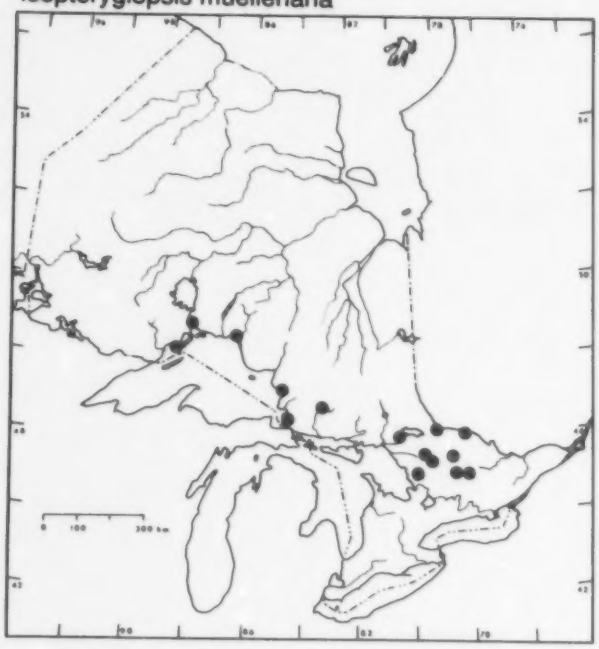
Hypnum revolutum



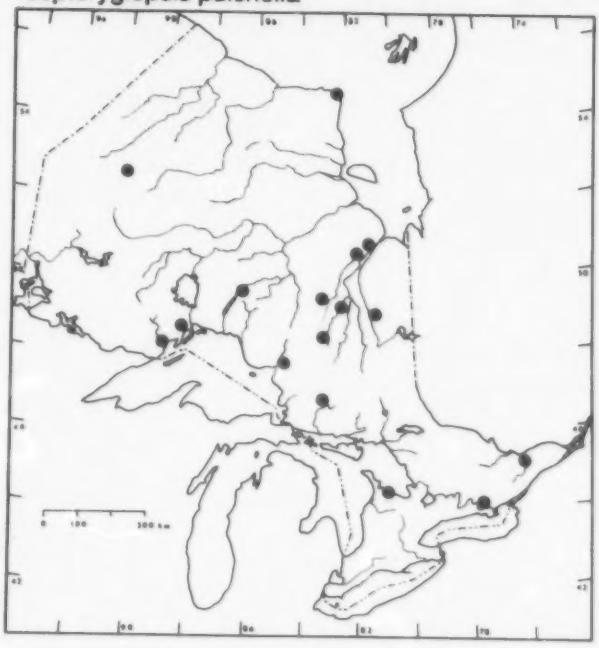
Hypnum vaucheri



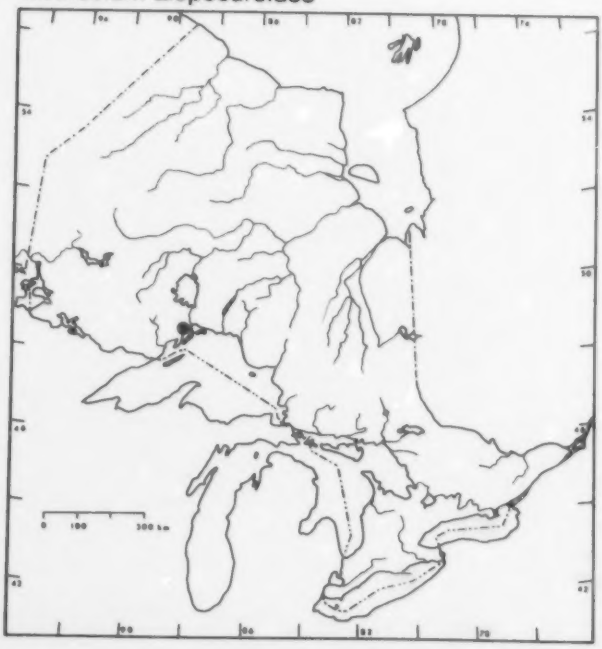
Isopterygiopsis muelleriana



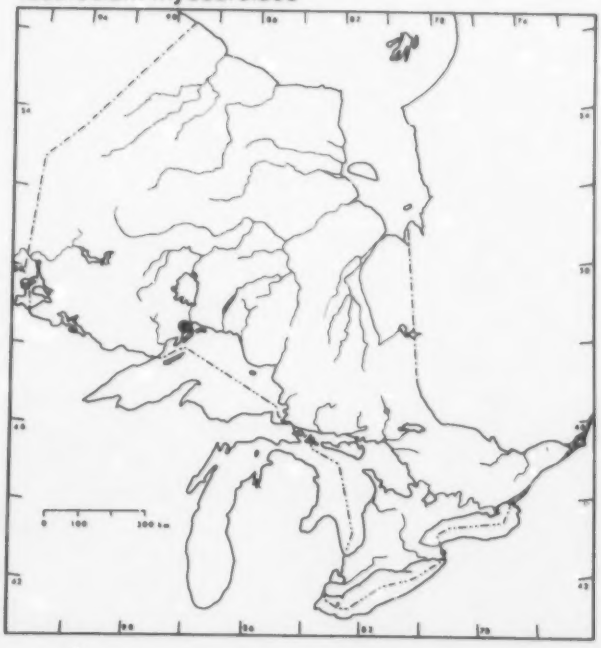
Isopterygiopsis pulchella



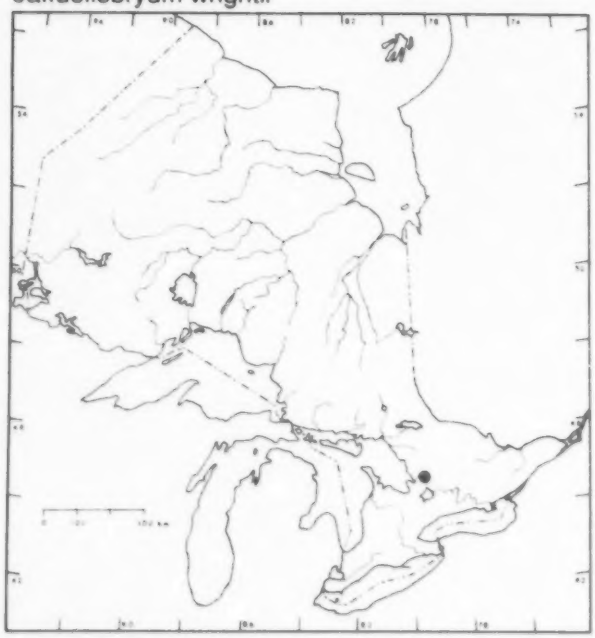
Isothecium alopecuroides



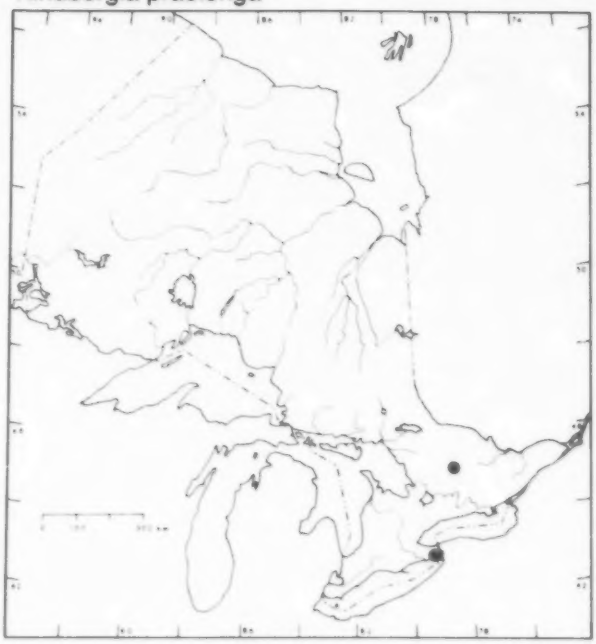
Isothecium myosuroides



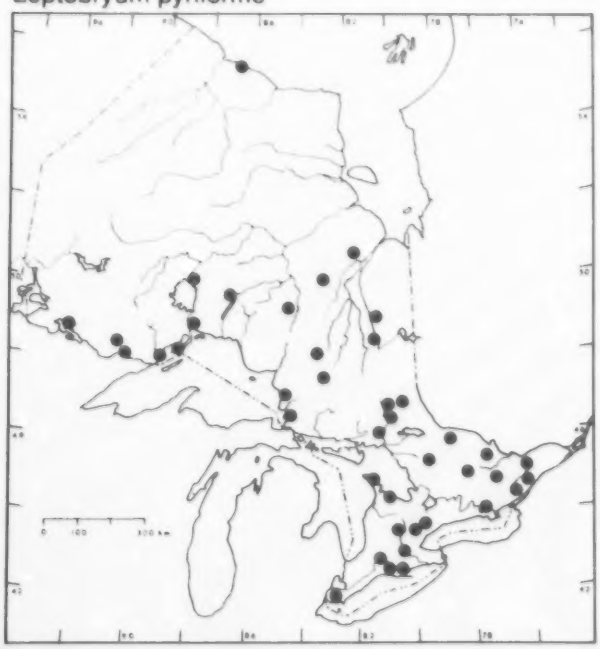
Jaffueliobryum wrightii



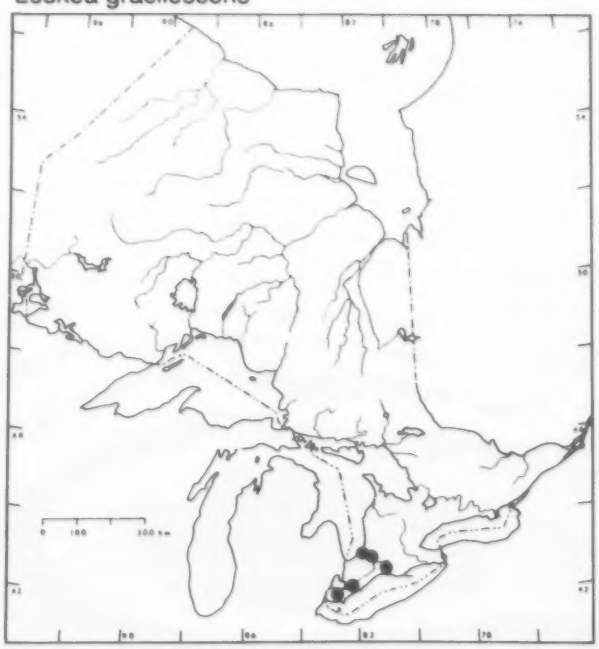
Kindbergia praelonga



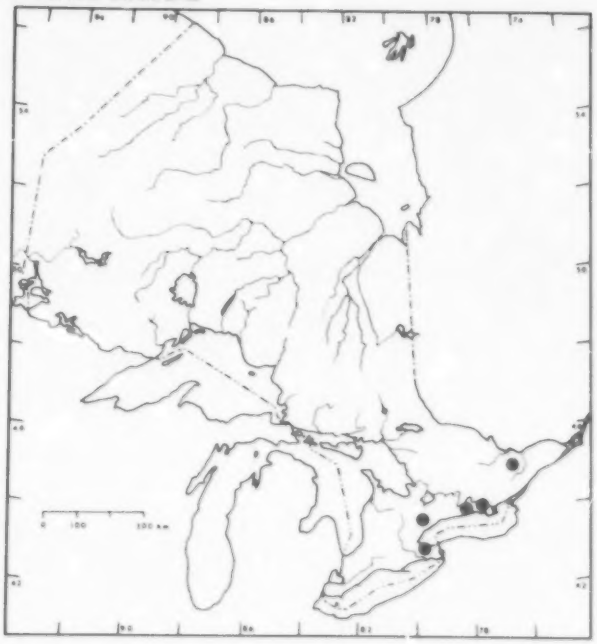
Leptobryum pyriforme



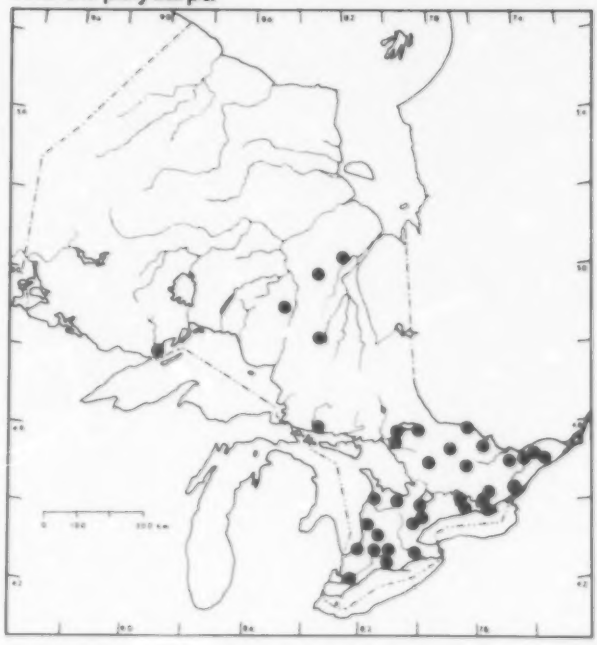
Leskea gracilescens



Leskea obscura

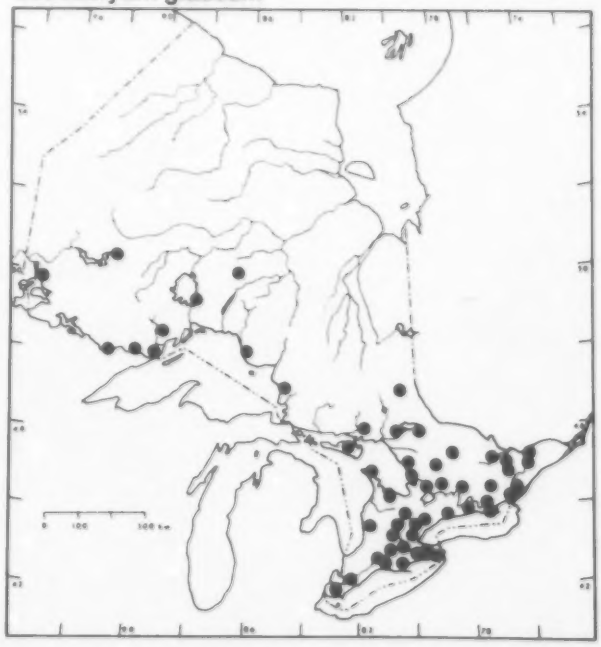


Leskea polycarpa

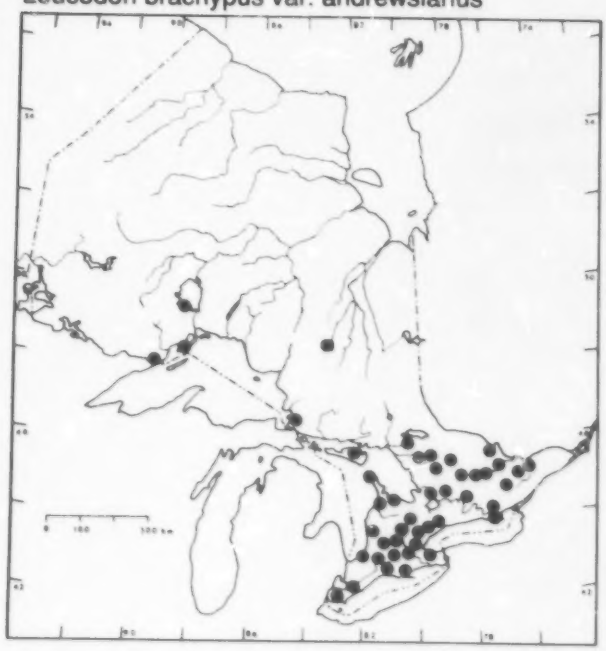


Leskeella nervosa

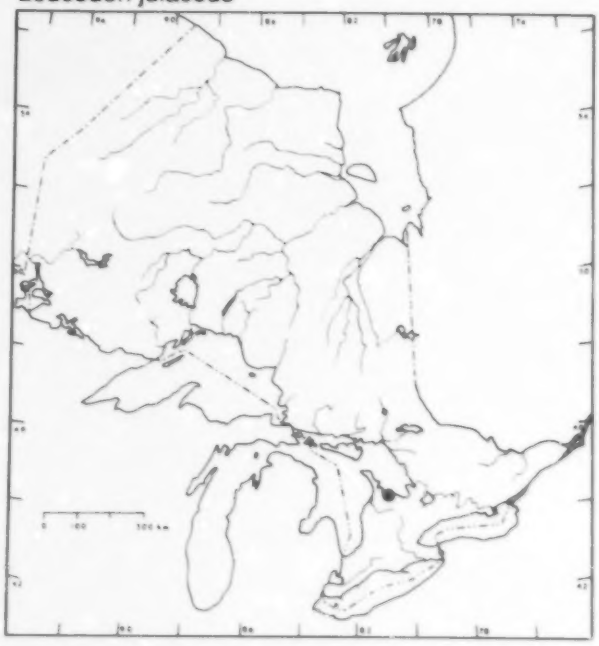
Leucobryum glaucum



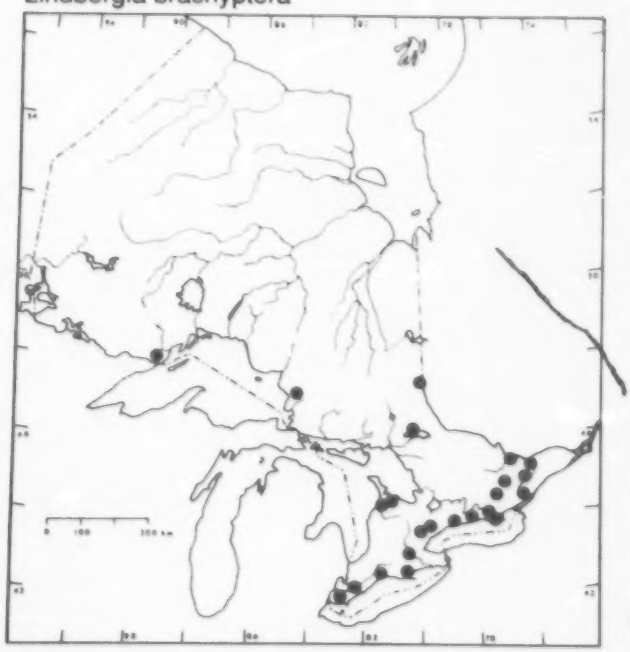
Leucodon brachypus var. andrewsianus



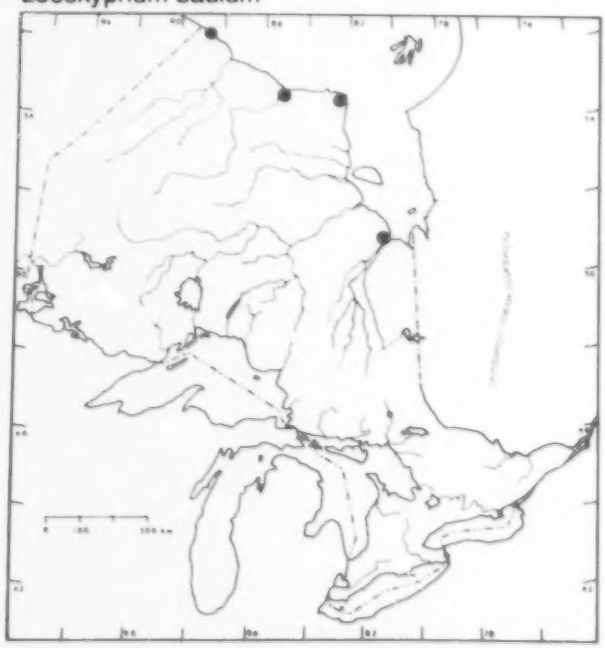
Leucodon julaceus



Lindbergia brachyptera

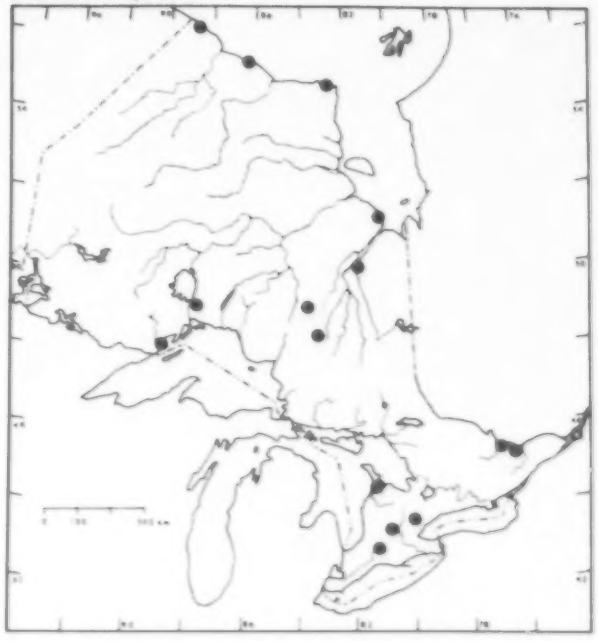


Loeskypnum badium

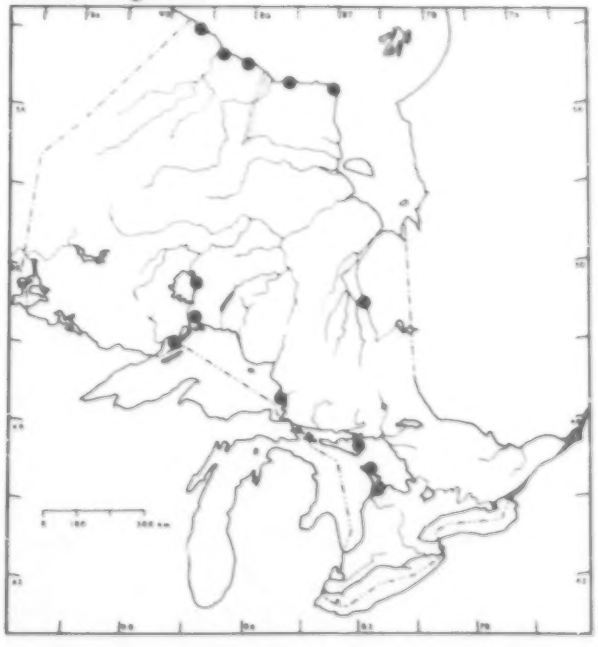


Meesia longiseta

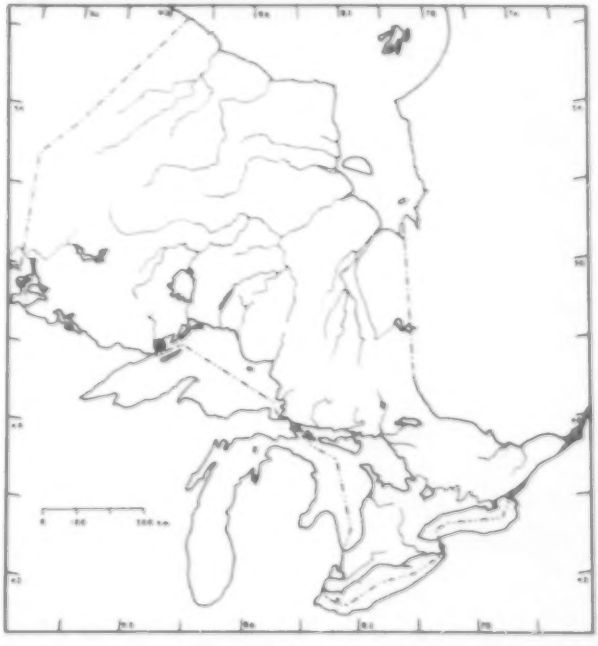
Meesia triquetra



Meesia uliginosa



Mielichhoferia mielichhoferiana

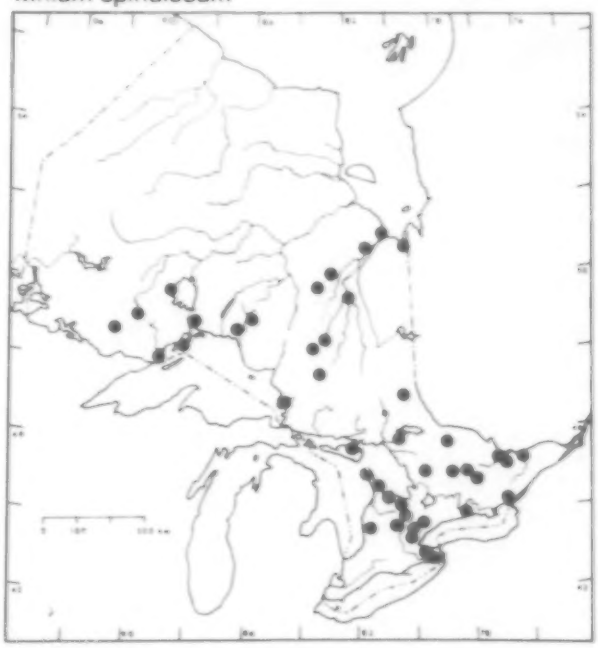


Mnium ambiguum

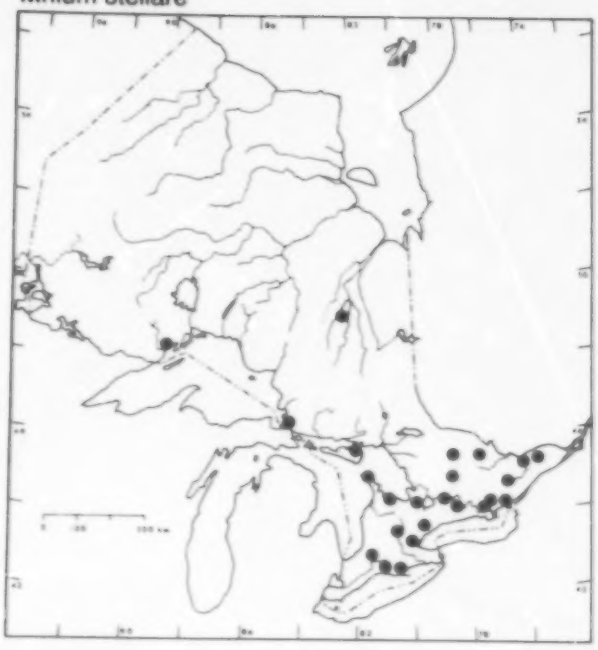
Mnium hornum

Mnium marginatum

Mnium spinulosum



Mnium stellare

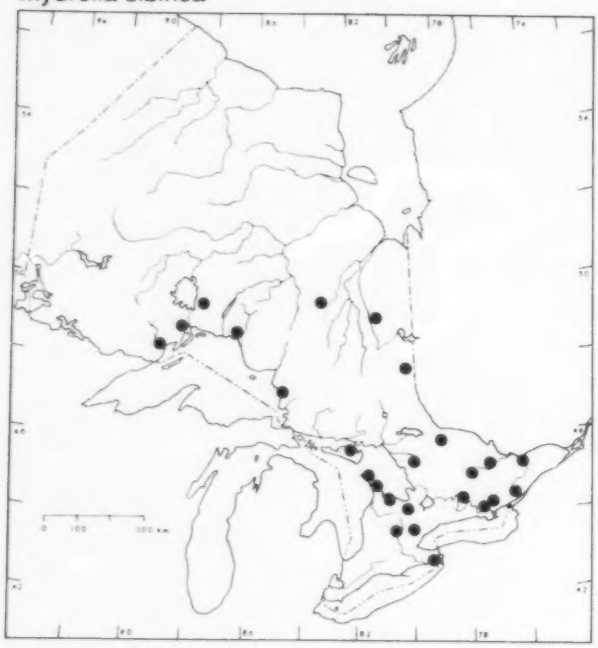


Mnium thomsonii

Myrinia pulvinata

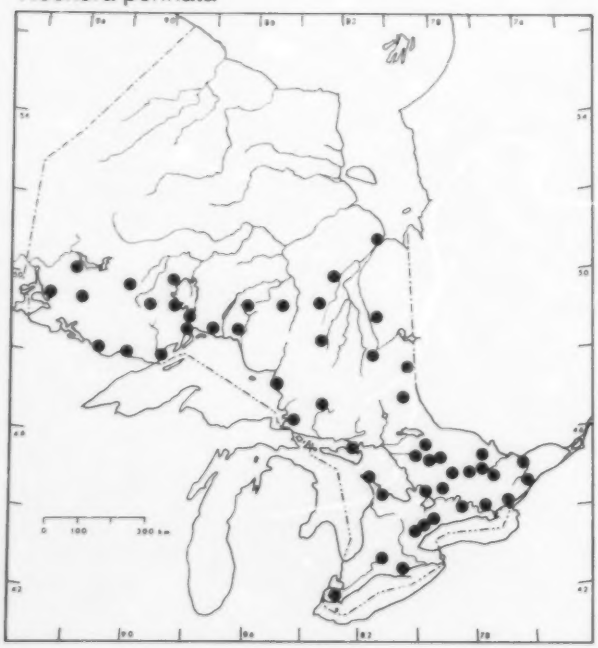
Myurella julacea

Myurella sibirica

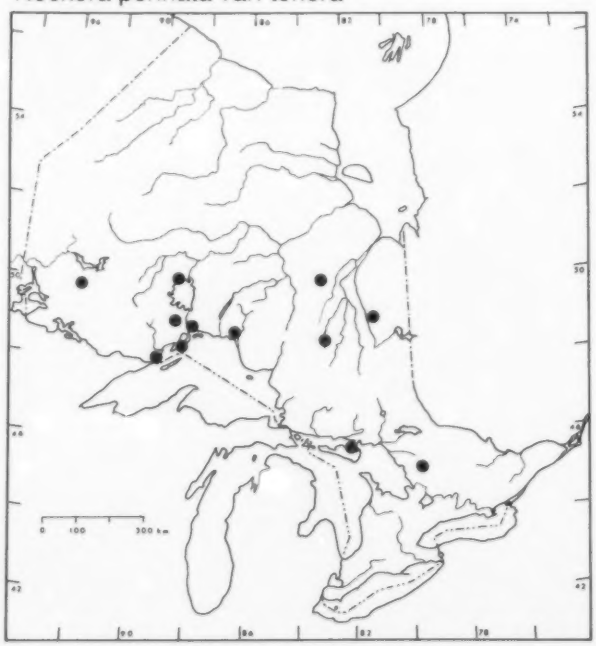


Myurella tenerrima

Neckera pennata

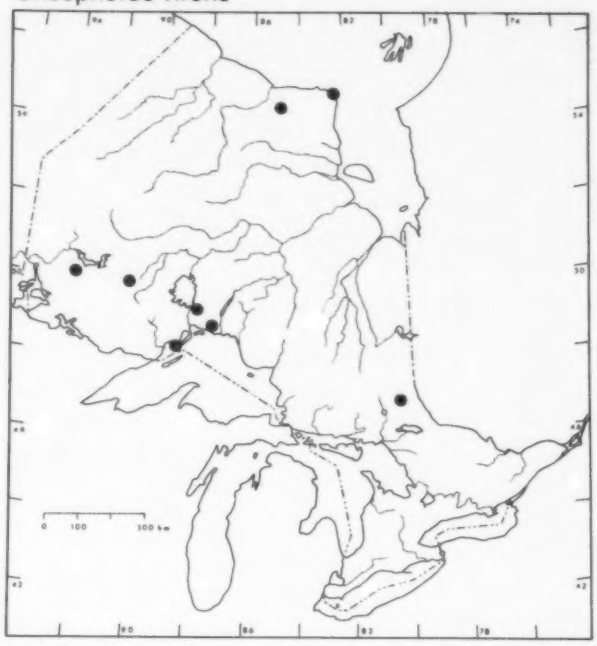


Neckera pennata var. tenera

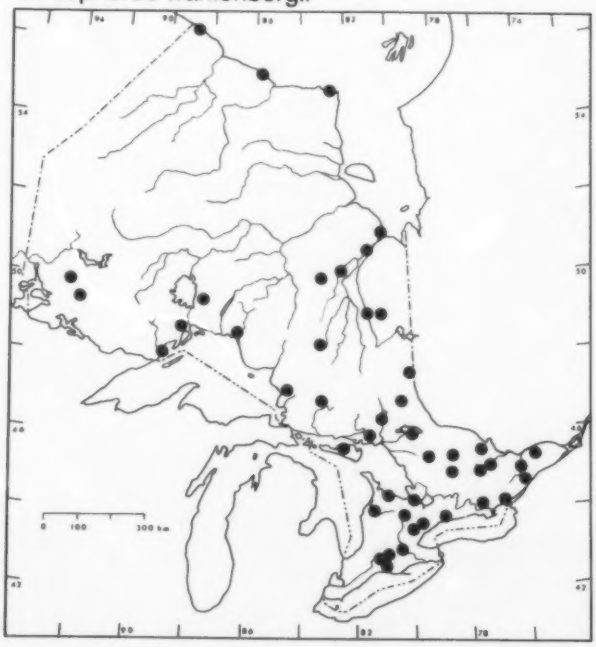


Neomacounia nitida

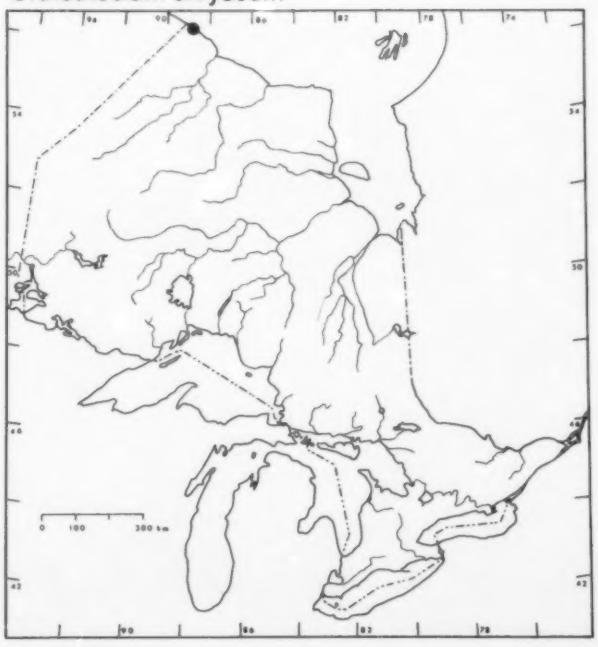
Oncophorus virens



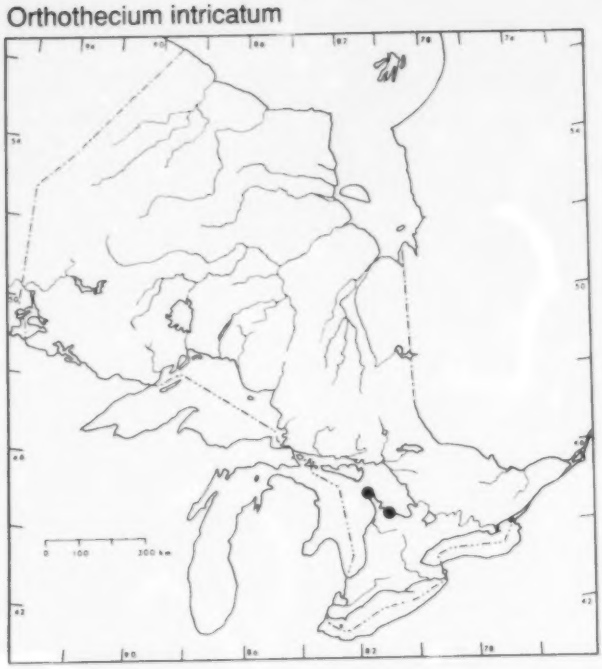
Oncophorus wahlenbergii



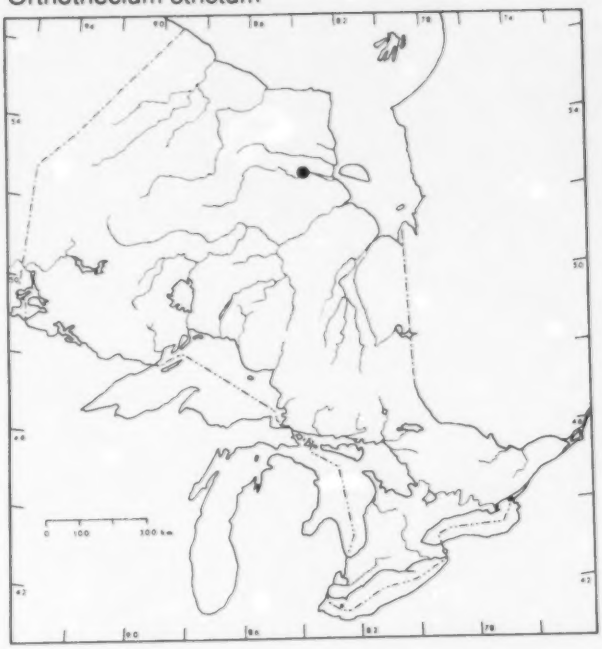
Orthothecium chryseum



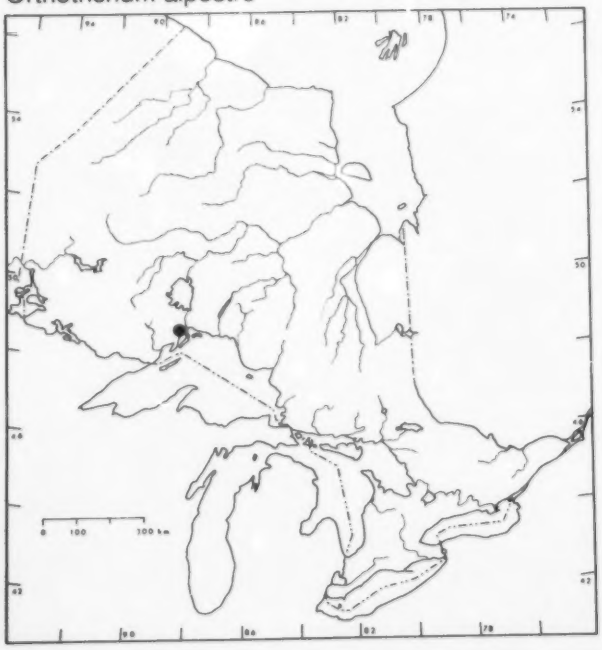
Orthothecium intricatum



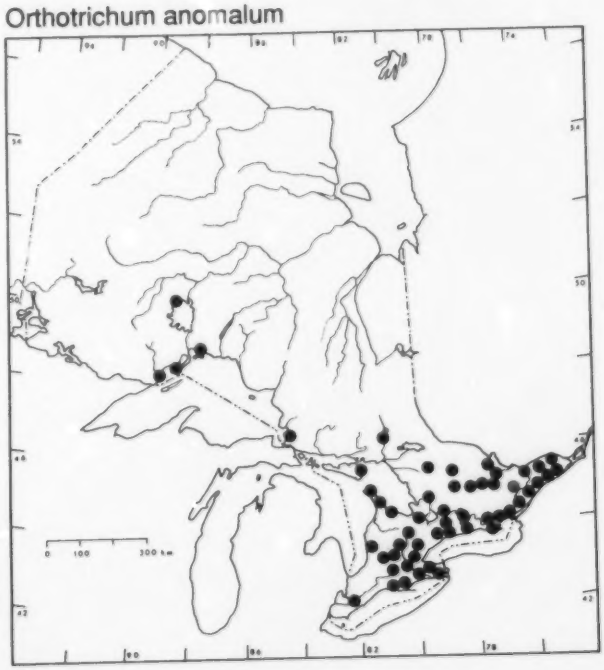
Orthothecium strictum



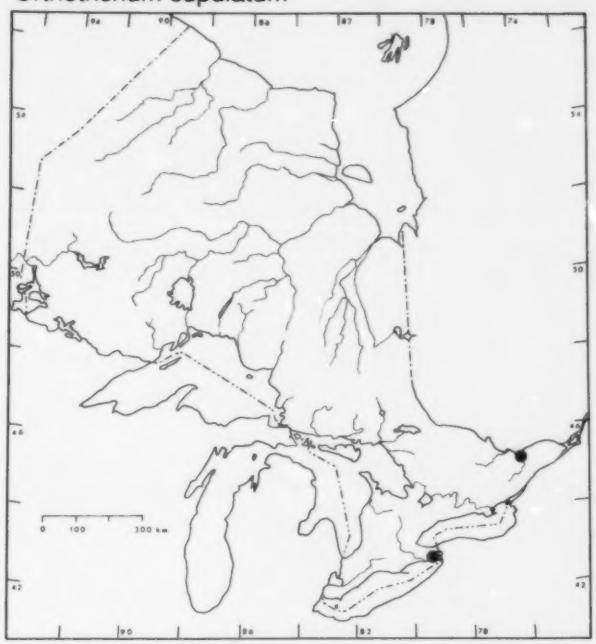
Orthotrichum alpestre



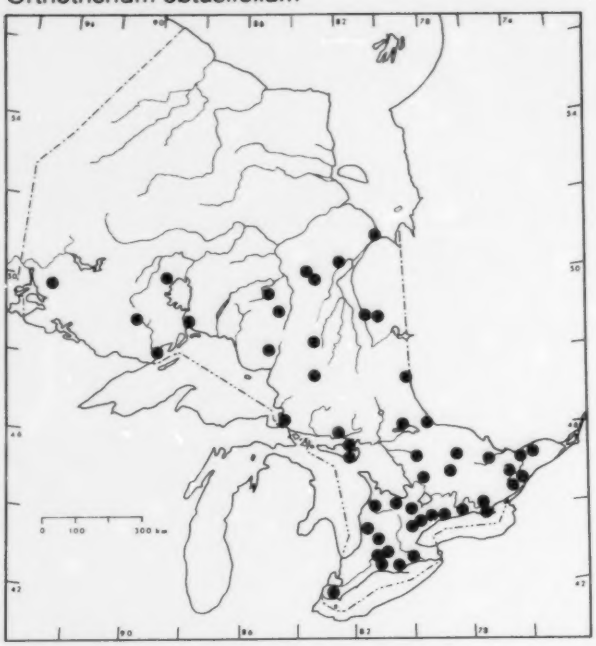
Orthotrichum anomalum



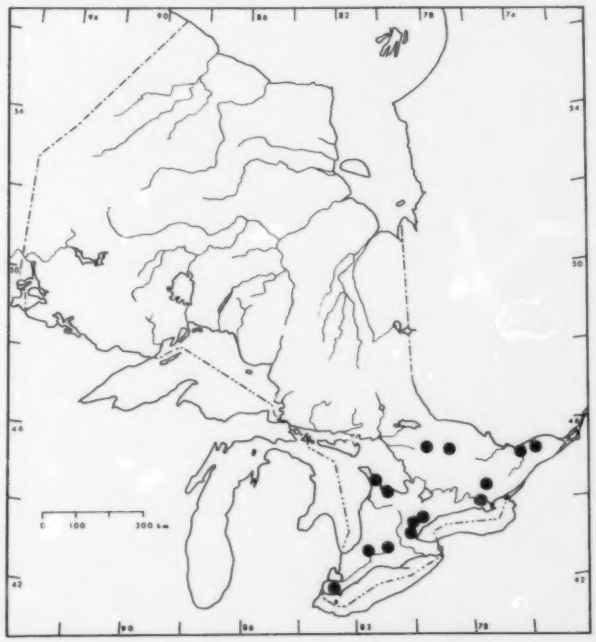
Orthotrichum cupulatum



Orthotrichum obtusifolium



Orthotrichum ohioense



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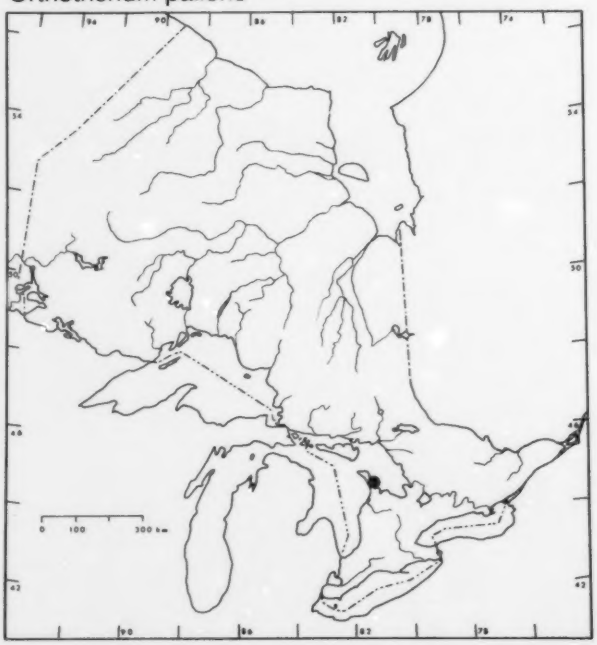
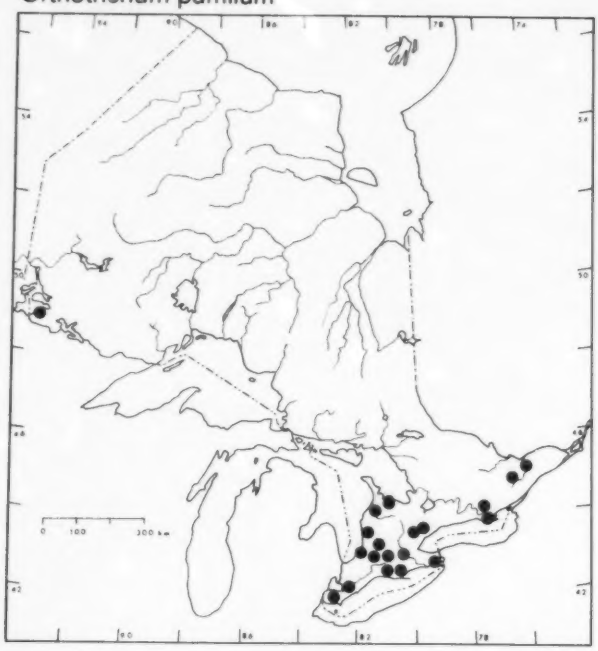
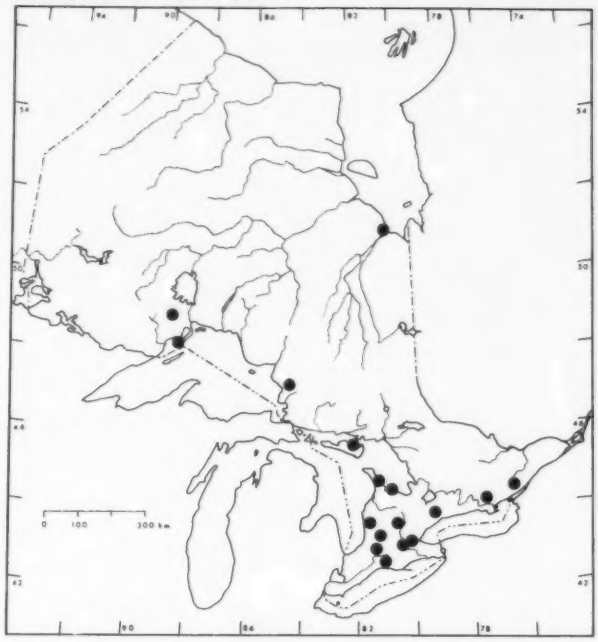


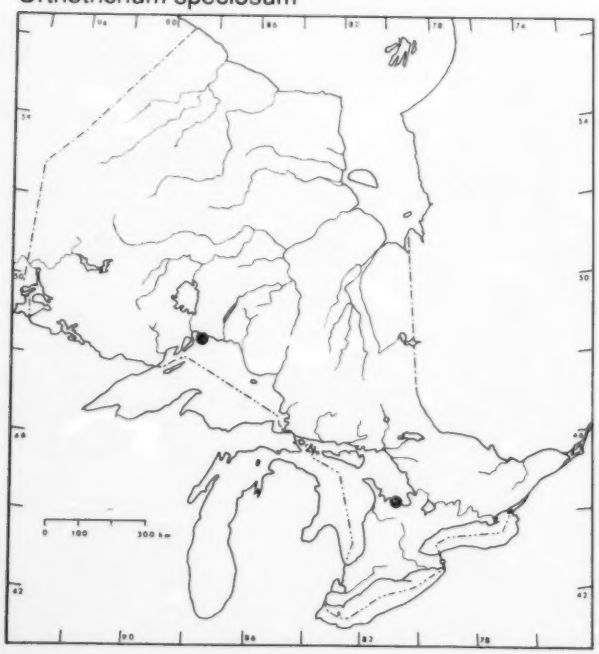
Orthotrichum pumilum



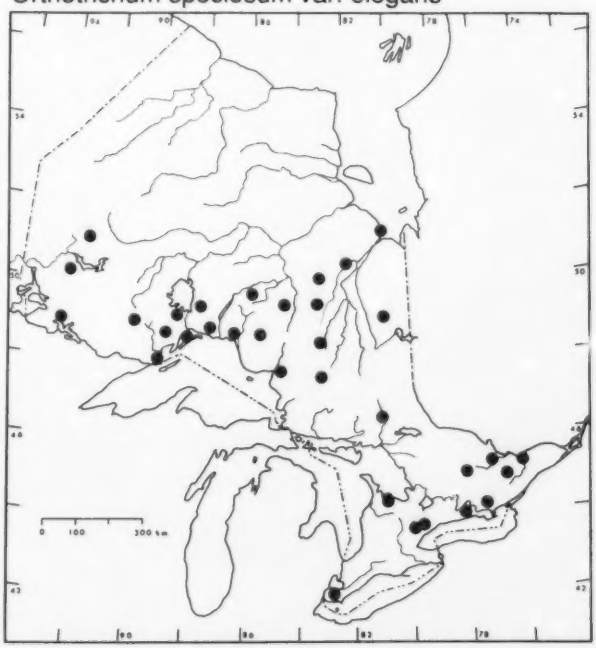
Orthotrichum sordidum



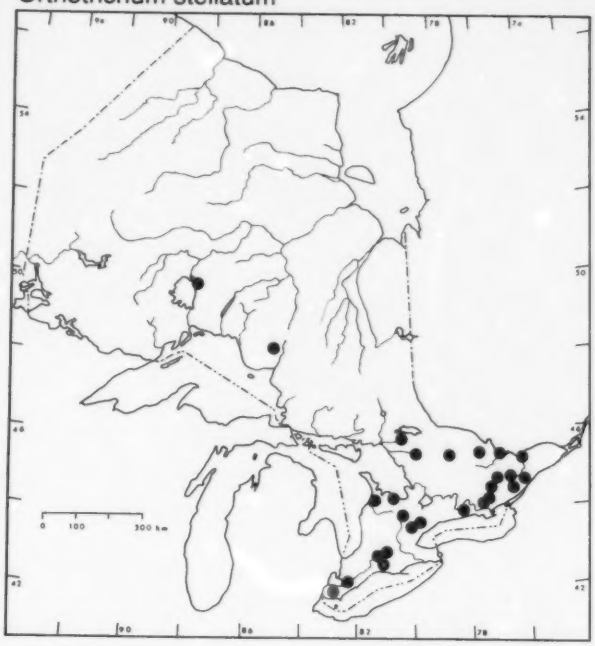
Orthotrichum speciosum



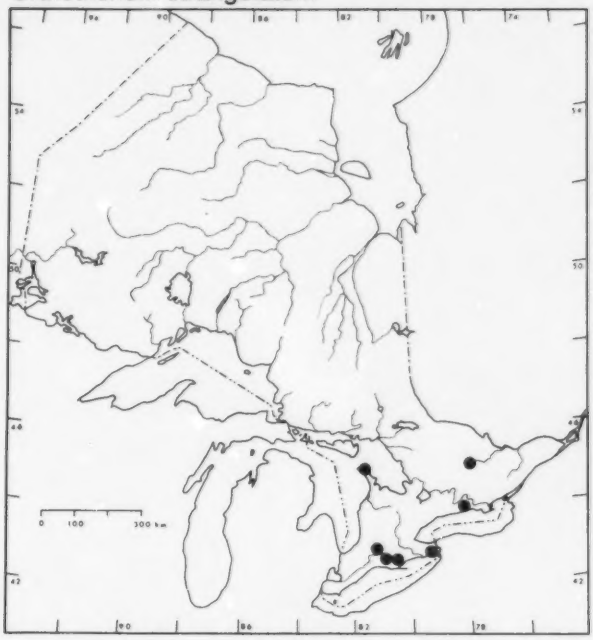
Orthotrichum speciosum var. elegans



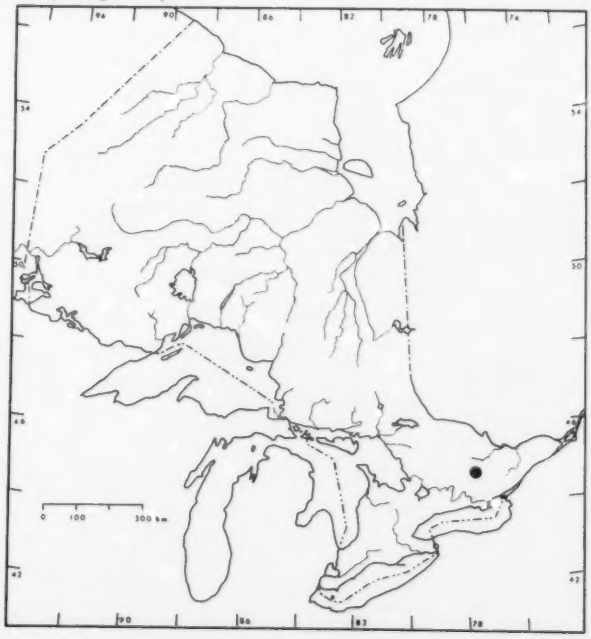
Orthotrichum stellatum



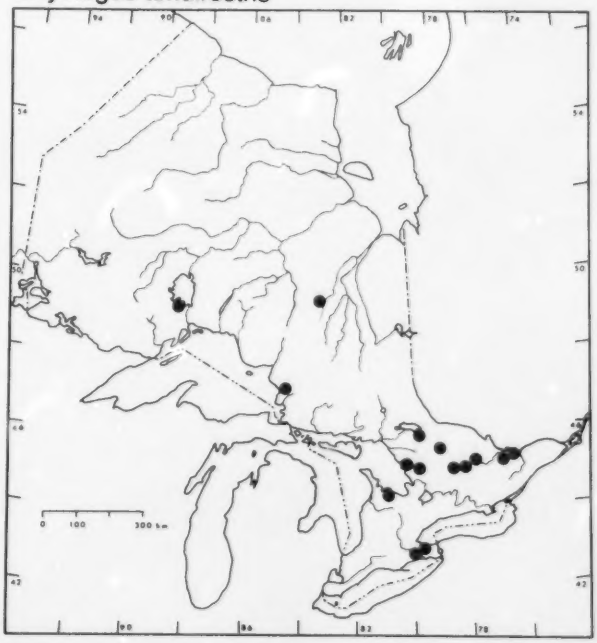
Orthotrichum strangulatum



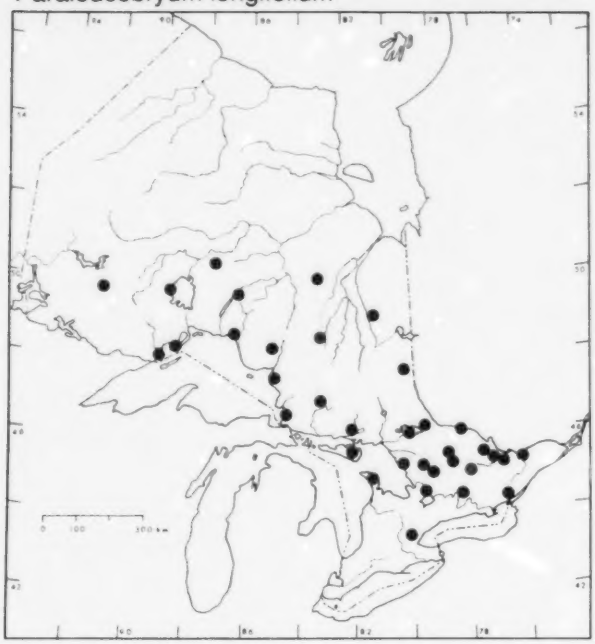
Oxystegus spiralis



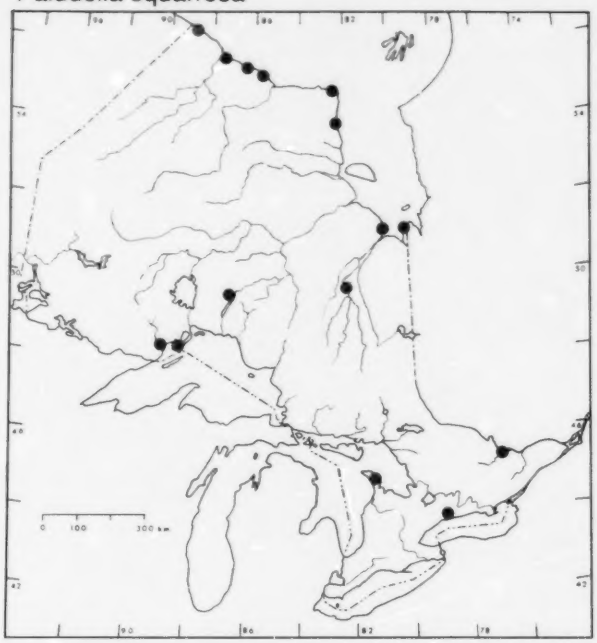
Oxystegus tenuirostris



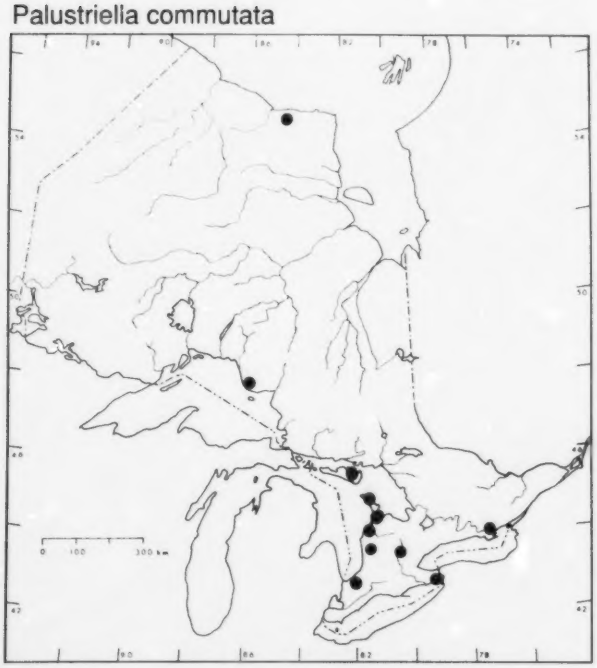
Paraleucobryum longifolium



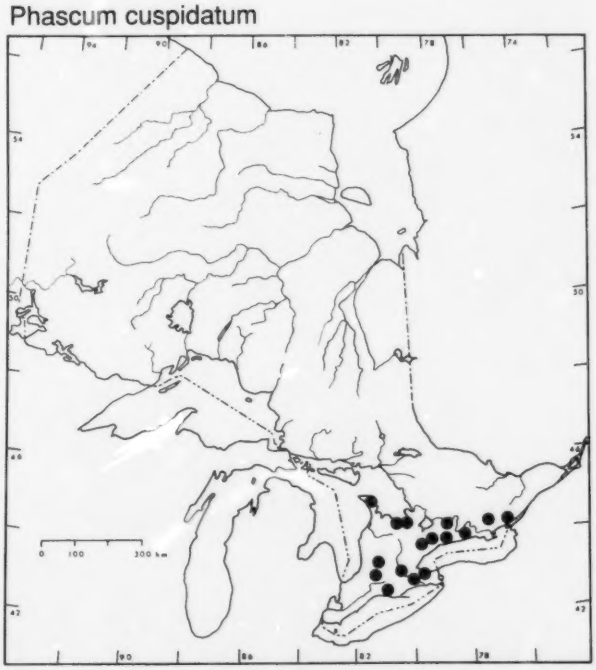
Paludella squarrosa



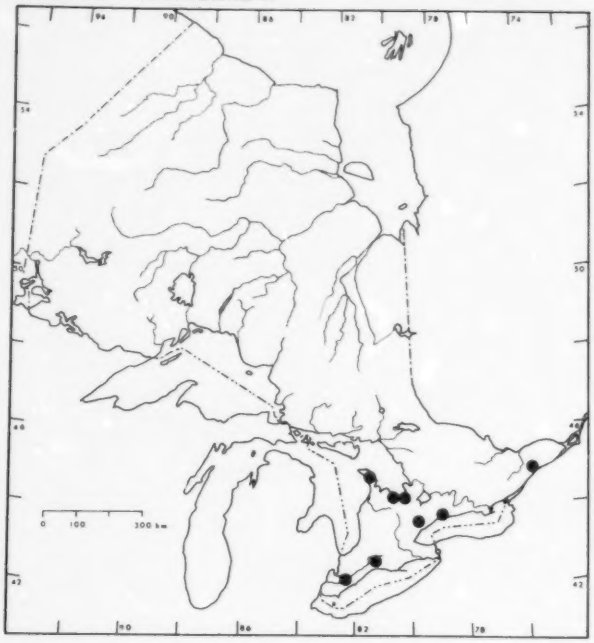
Palustriella commutata



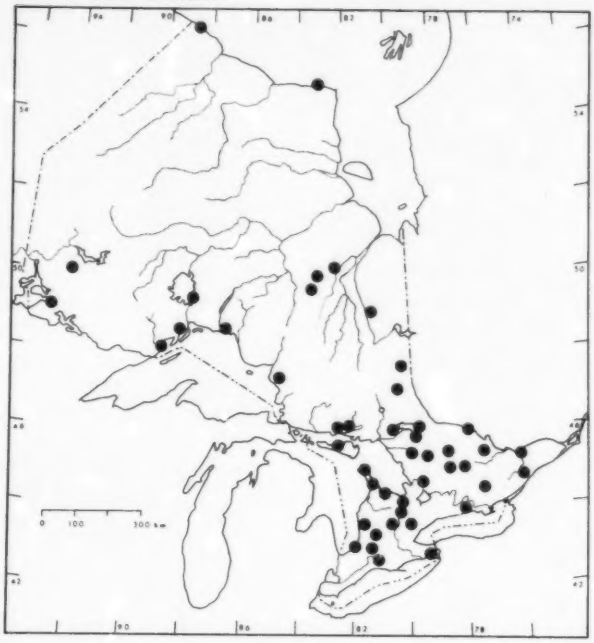
Phascum cuspidatum



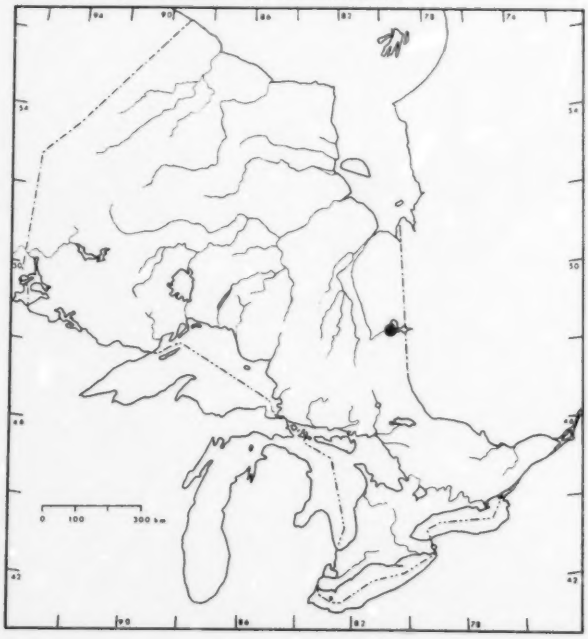
Phascum floerkeanum



Philonotis fontana

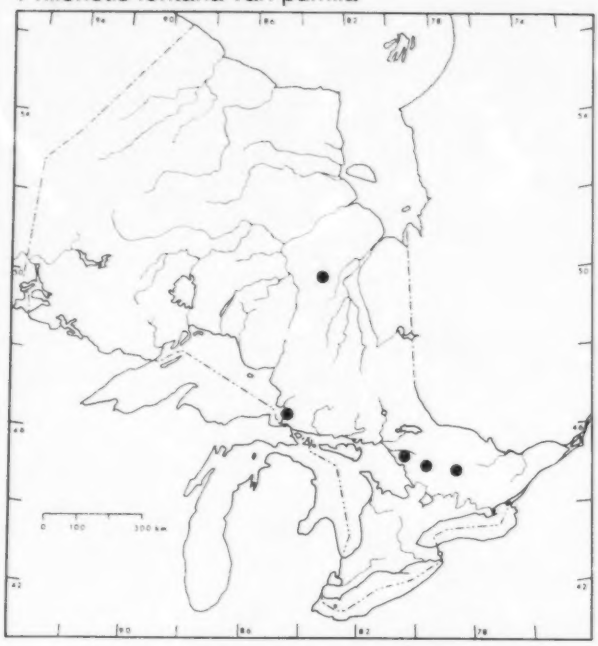


Philonotis fontana var. americana

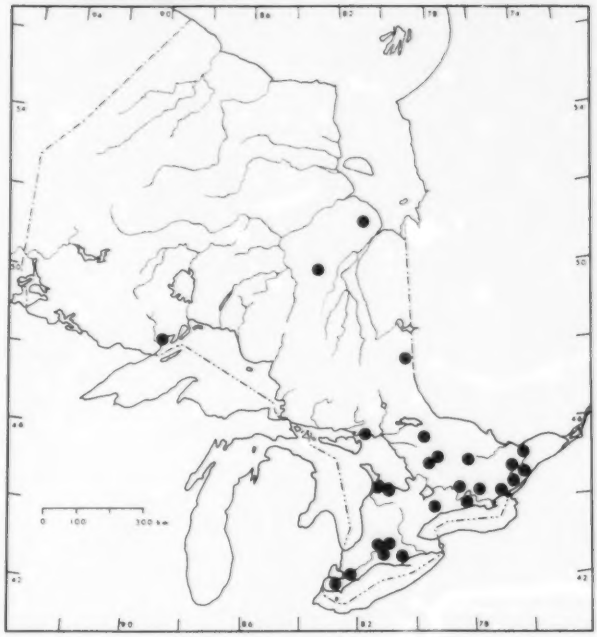


Philonotis fontana var. caespitosa

Philonotis fontana var. pumila

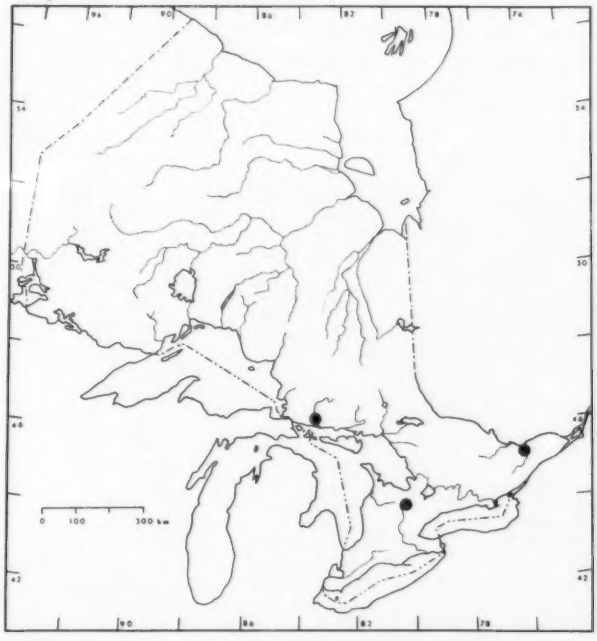


Philonotis marchica

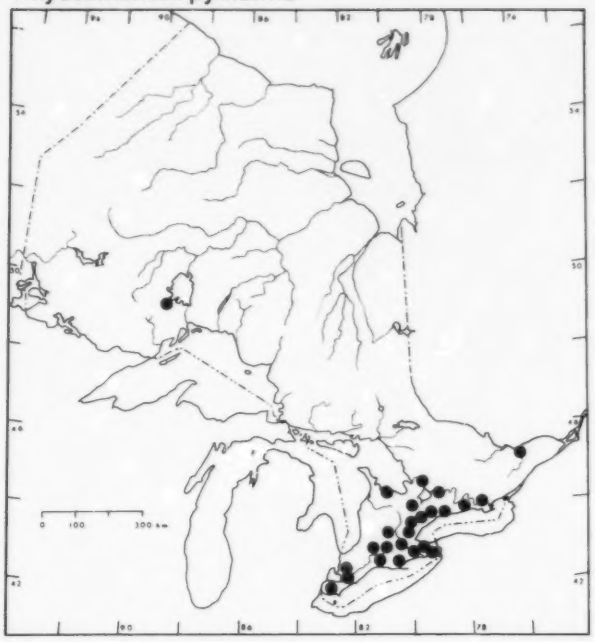


Physcomitrella patens

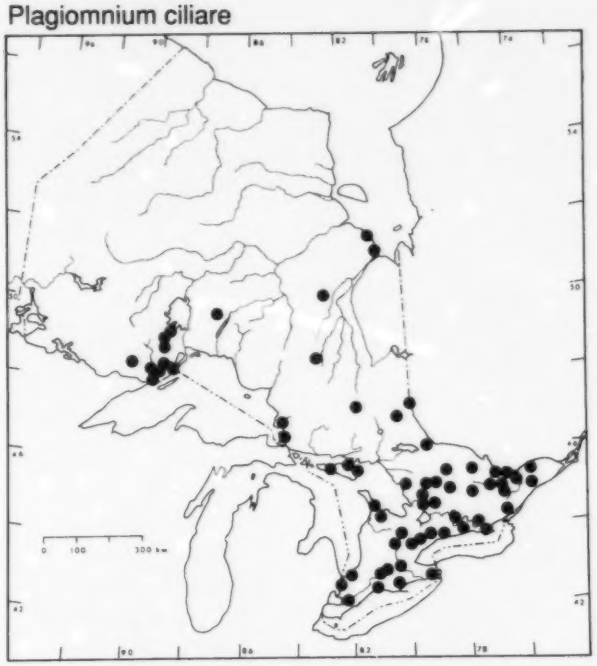
Physcomitrium immersum



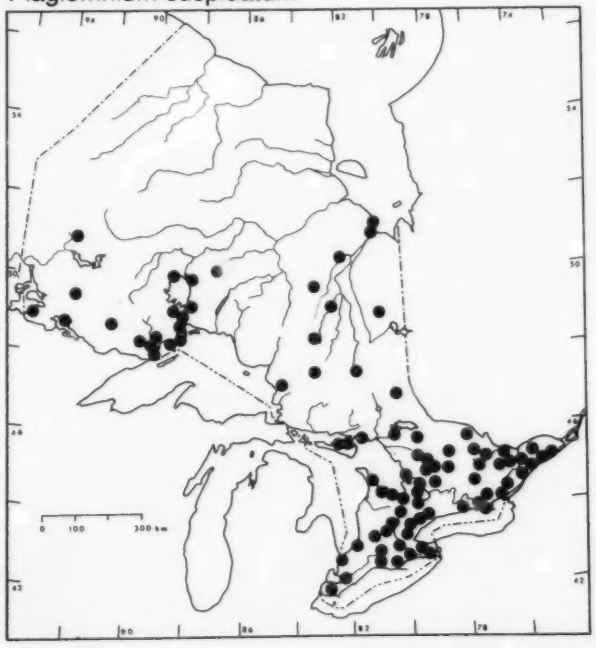
Physcomitrium pyriforme



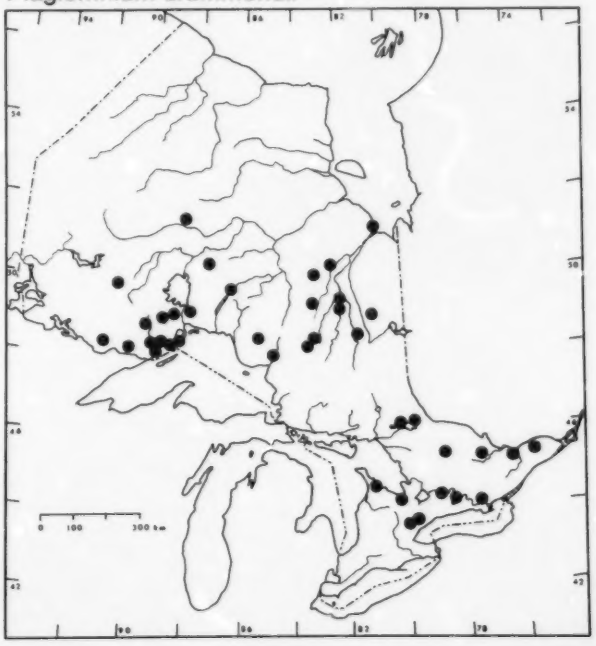
Plagiomnium ciliare



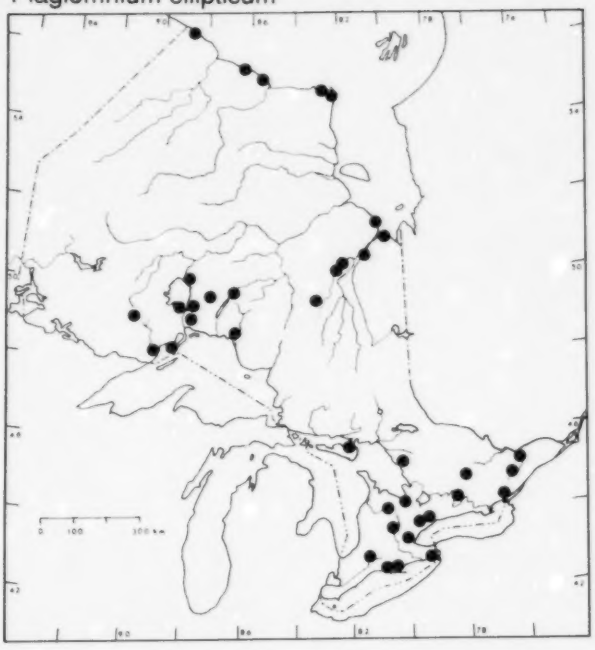
Plagiomnium cuspidatum



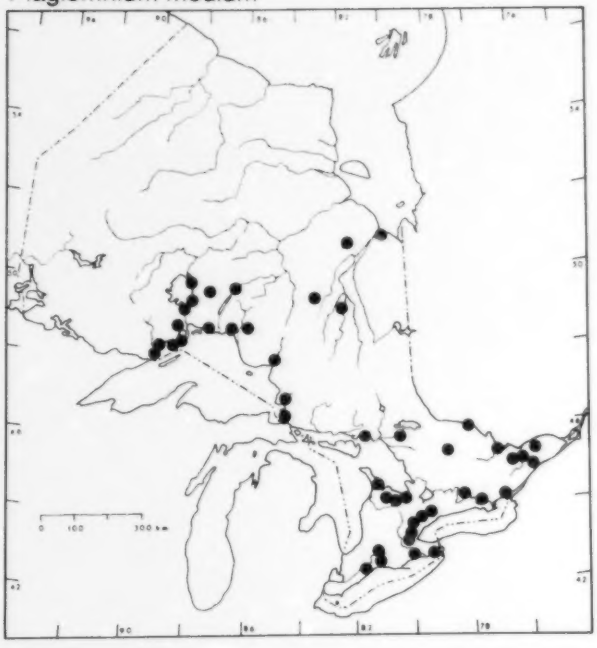
Plagiomnium drummondii



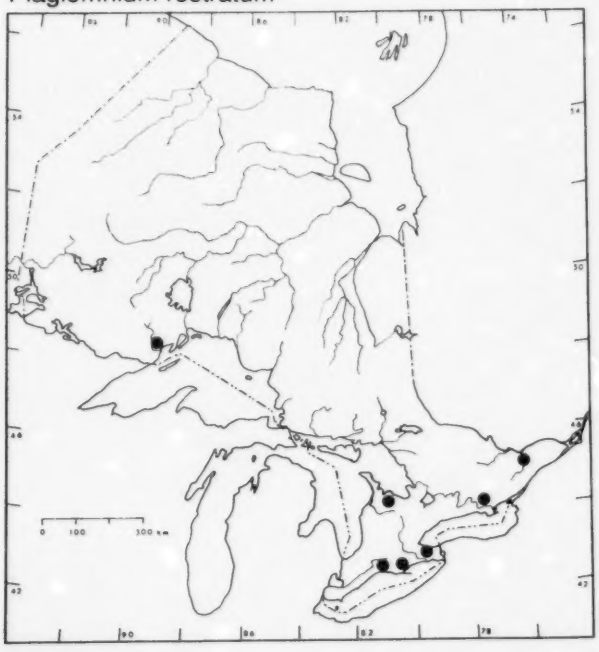
Plagiomnium ellipticum



Plagiomnium medium

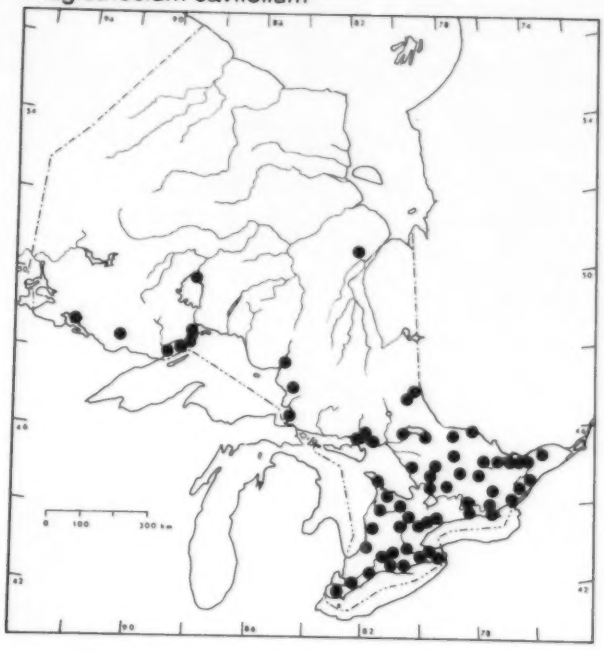


Plagiomnium rostratum

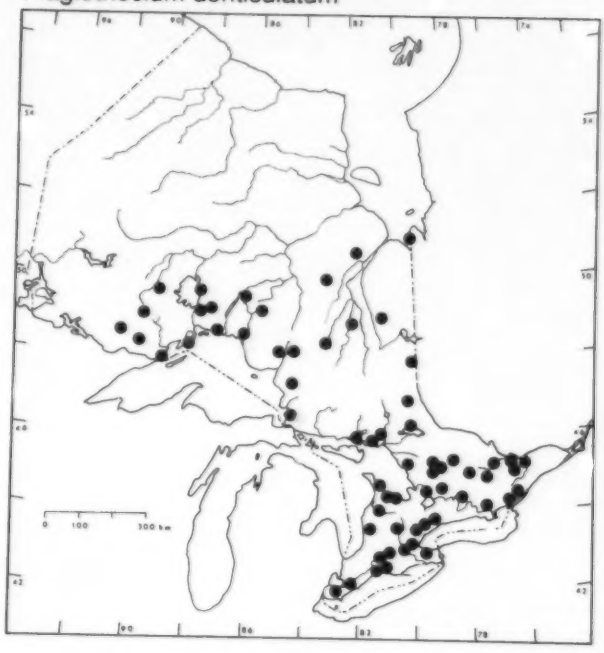


Plagiopus oederiana

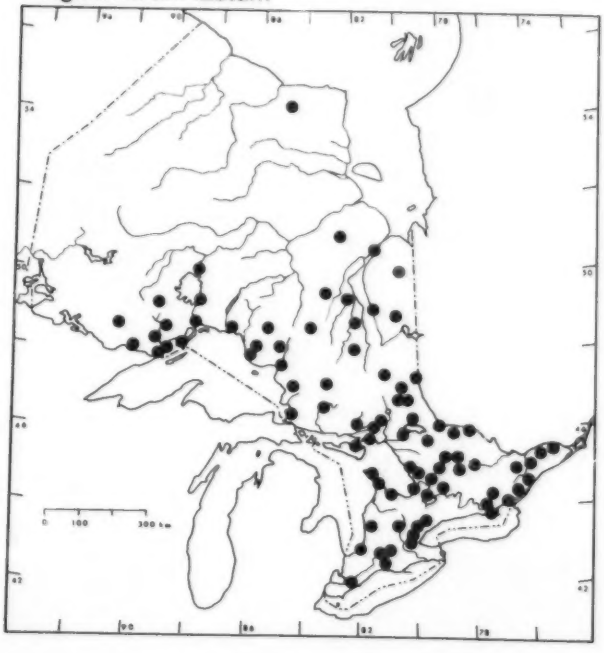
Plagiothecium cavifolium



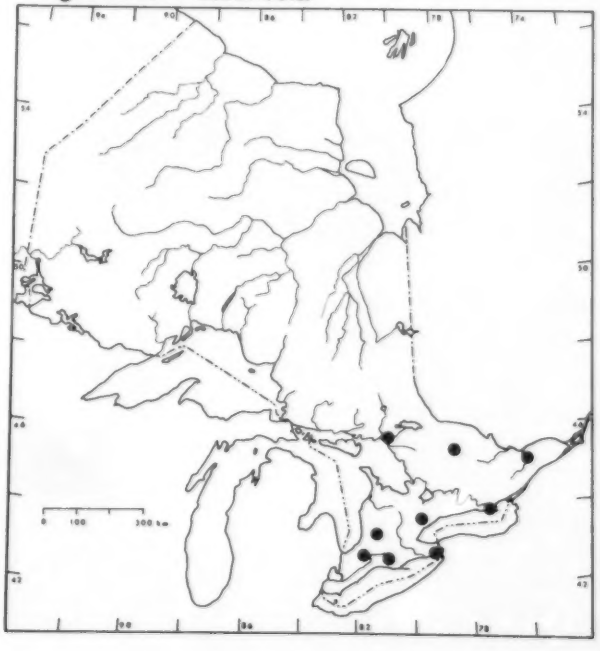
Plagiothecium denticulatum



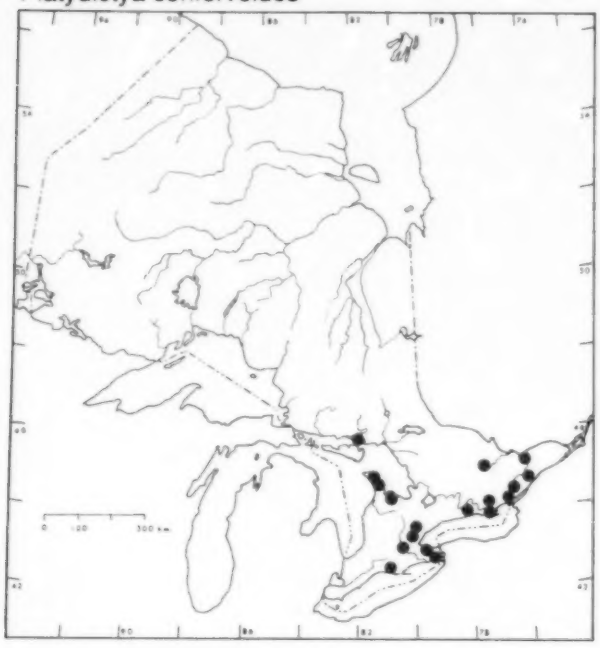
Plagiothecium laetum



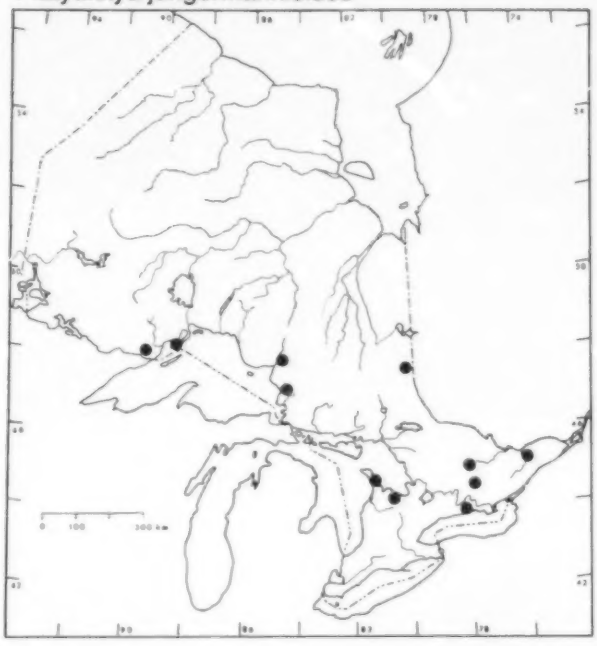
Plagiothecium latebricola



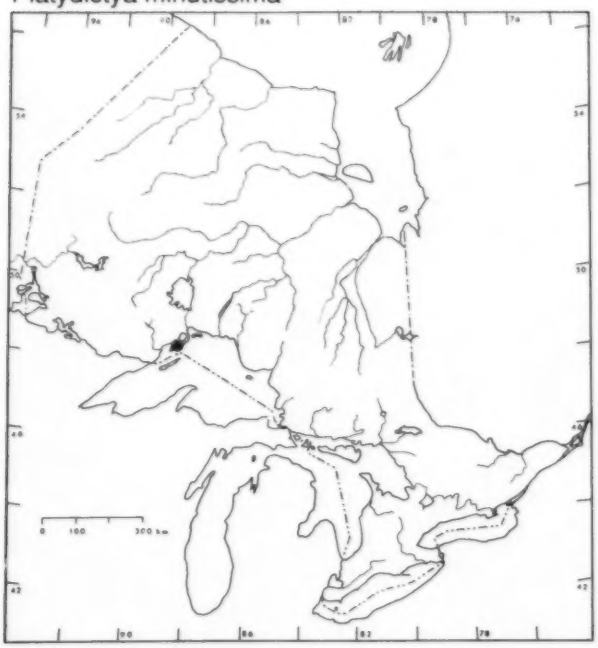
Platydictya confervoides



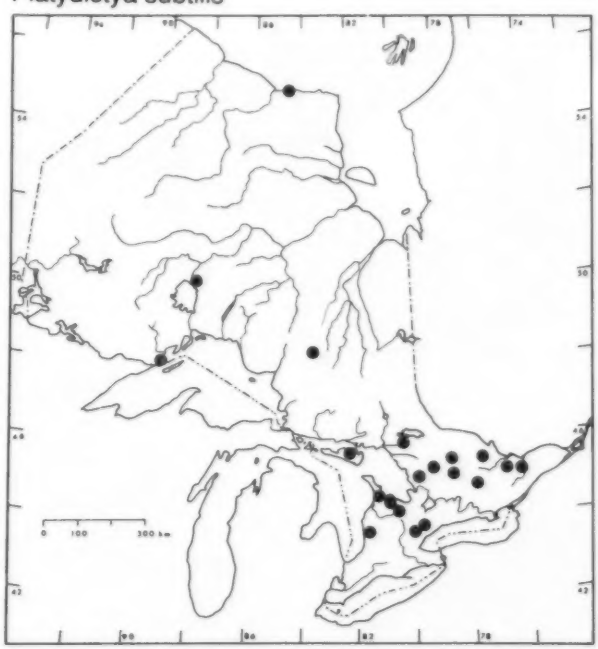
Platydictya jungermannioides



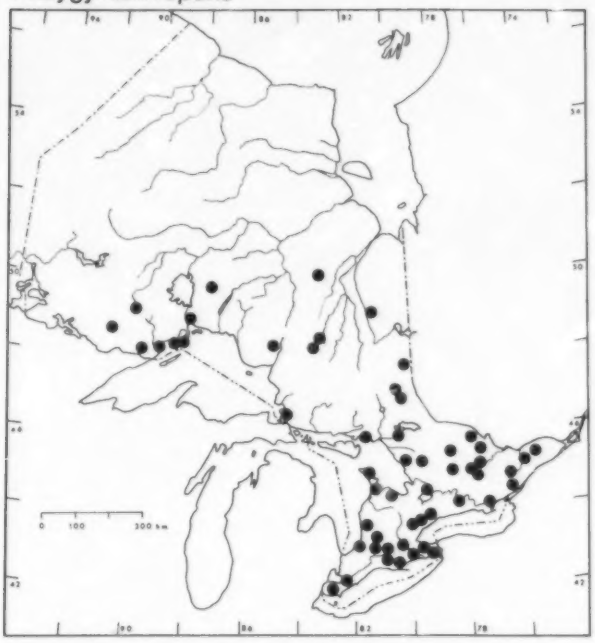
Platydictya minutissima



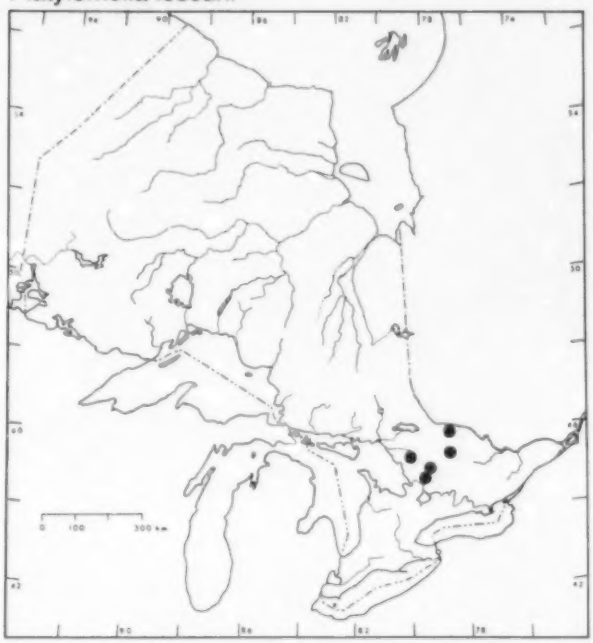
Platydictya subtilis



Platygyrium repens

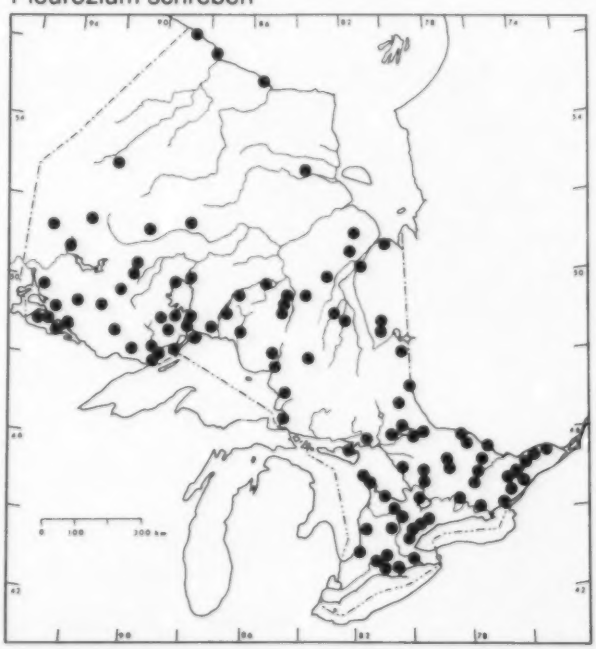


Platylomella lescurii



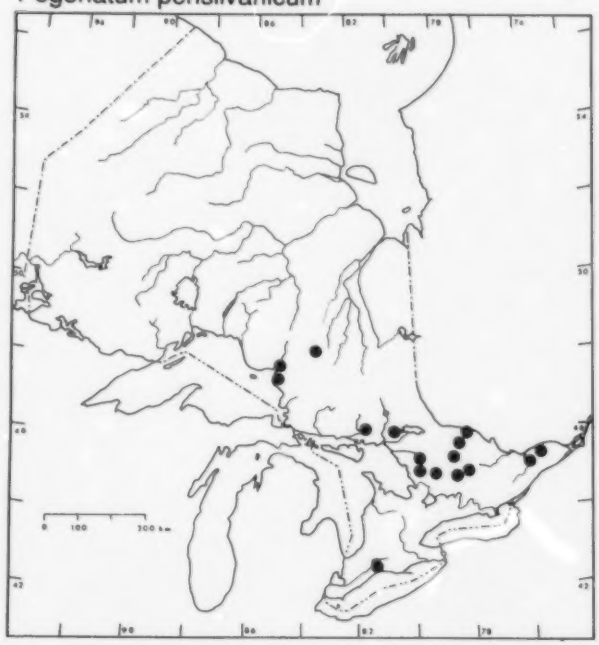
Pleuridium subulatum

Pleurozium schreberi

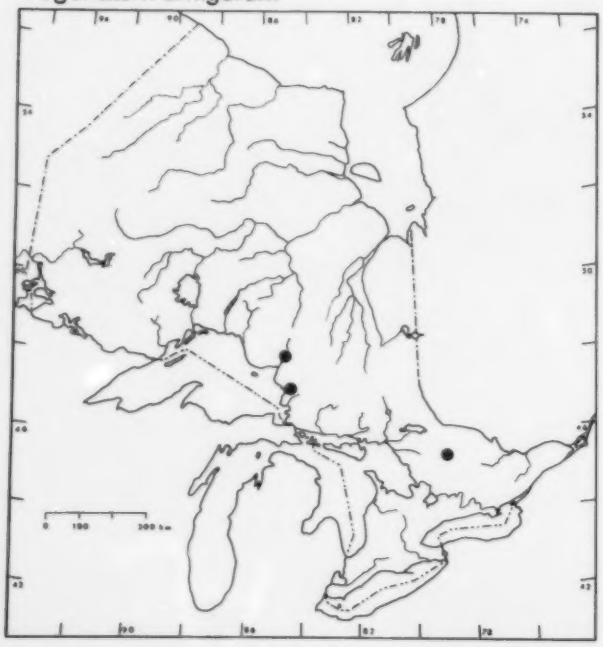


Pogonatum dentatum

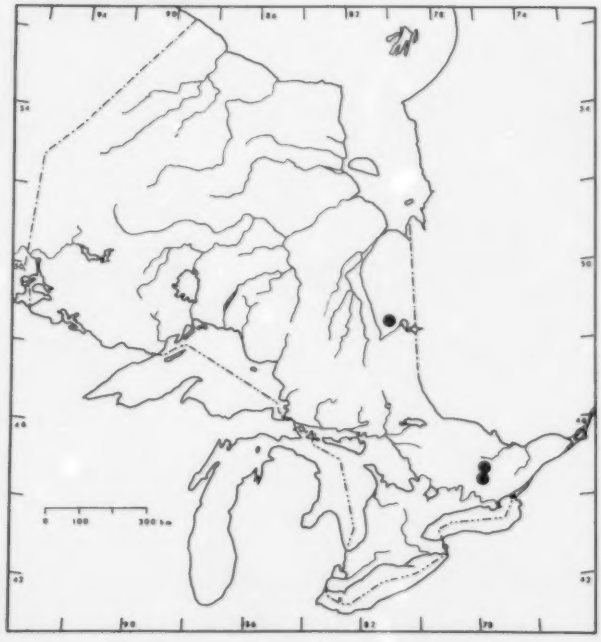
Pogonatum pensilvanicum



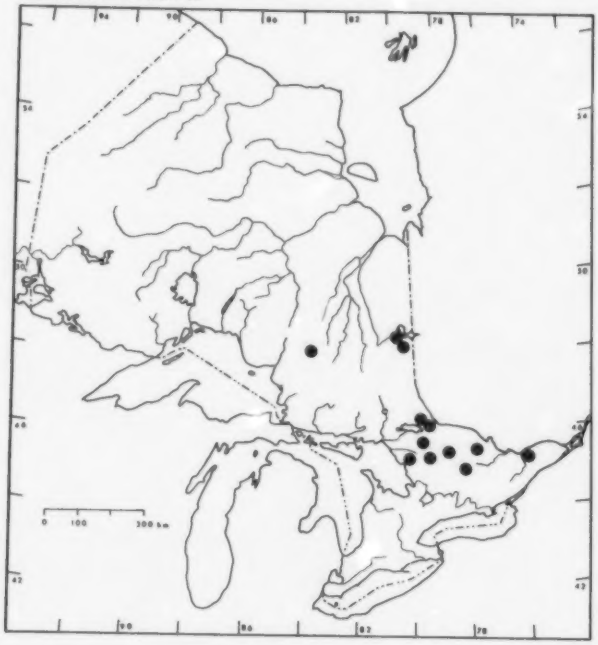
Pogonatum urnigerum



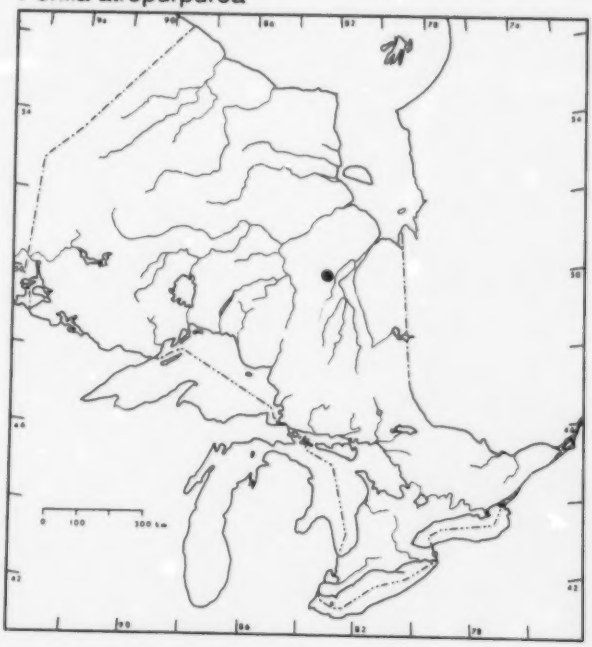
Pohlia andalusica



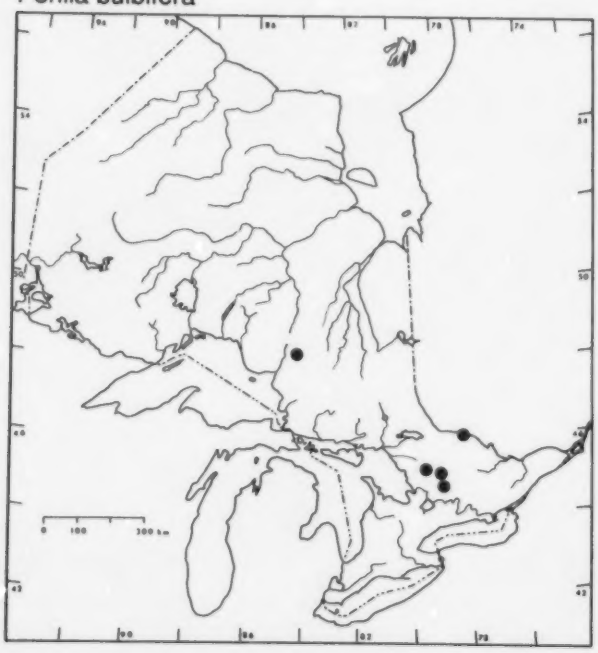
Pohlia annotina



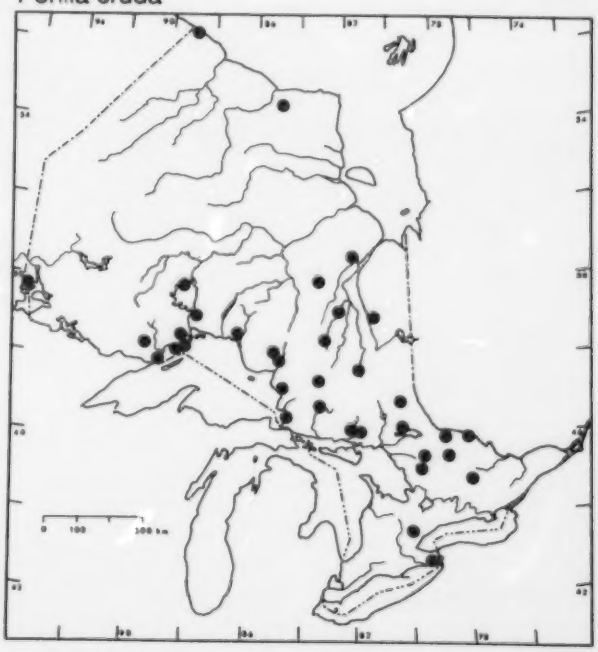
Pohlia atropurpurea



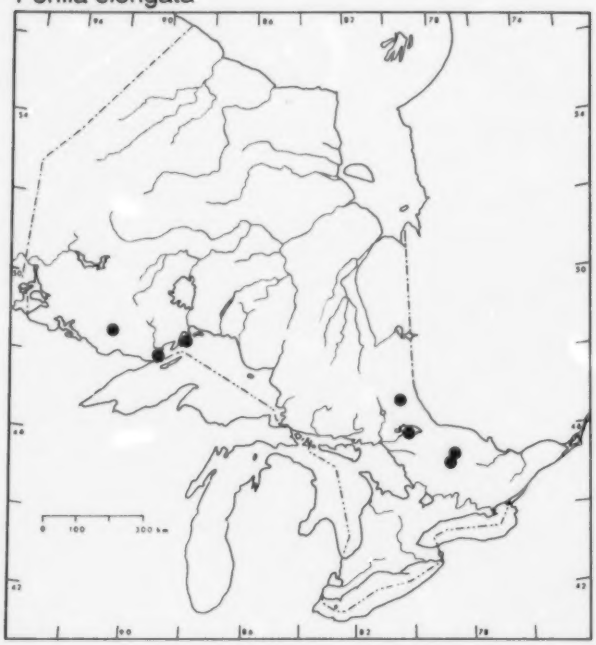
Pohlia bulbifera



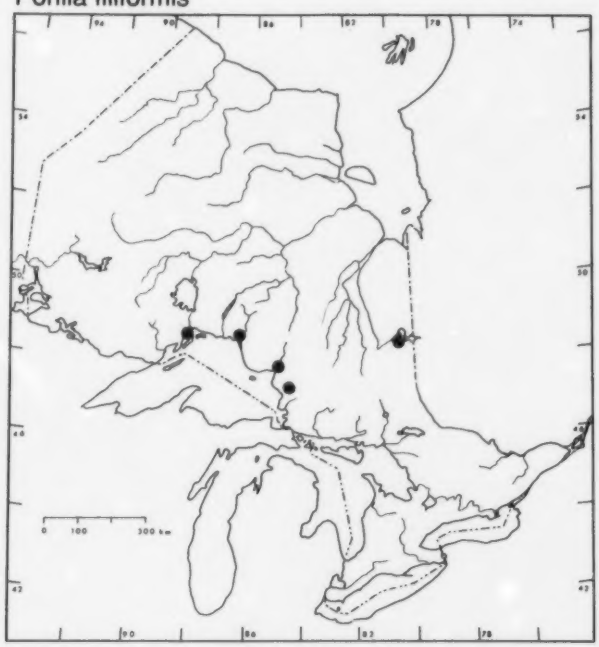
Pohlia cruda



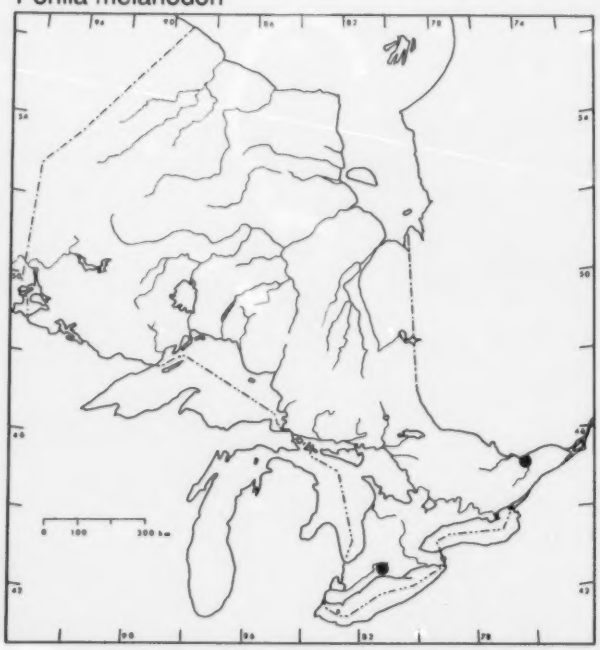
Pohlia elongata



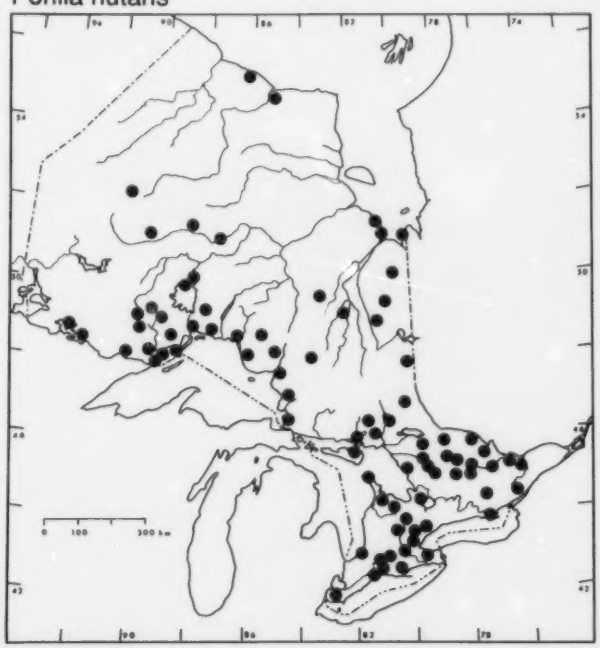
Pohlia filiformis



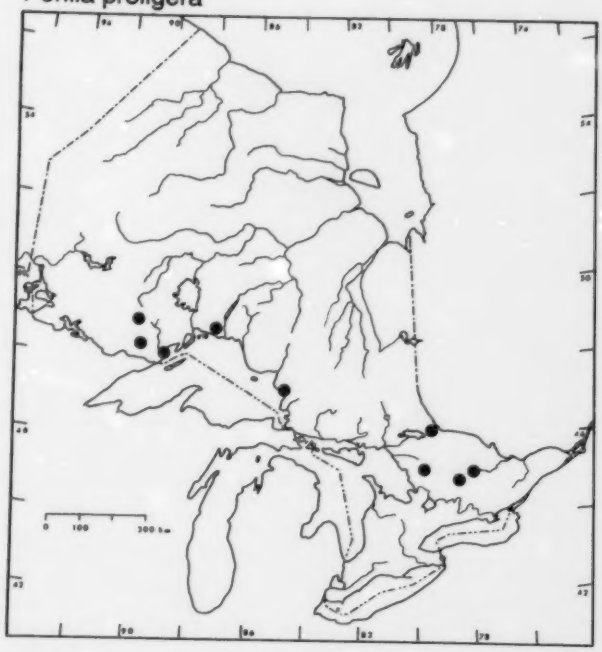
Pohlia melanodon



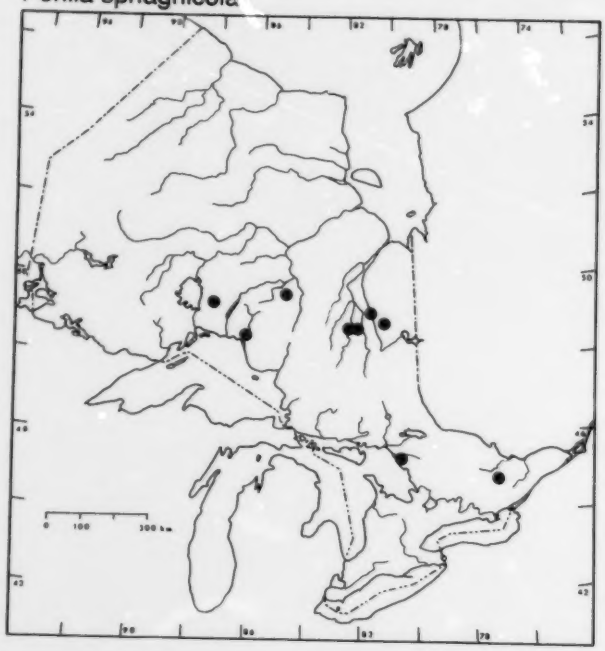
Pohlia nutans



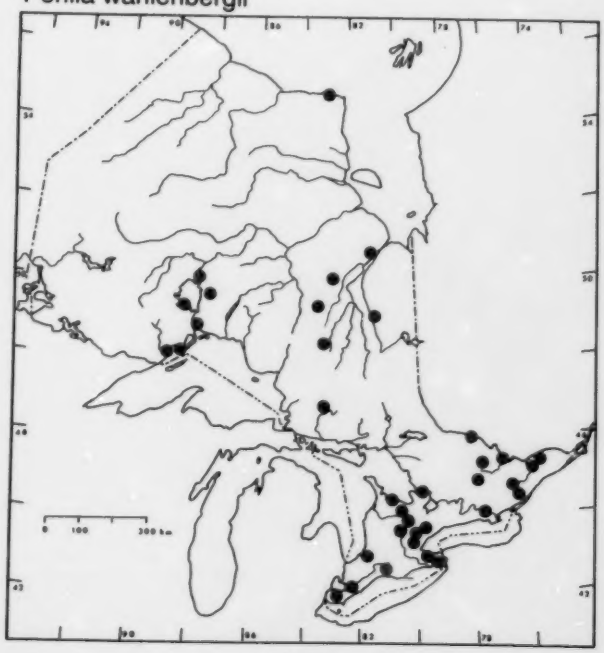
Pohlia proligera



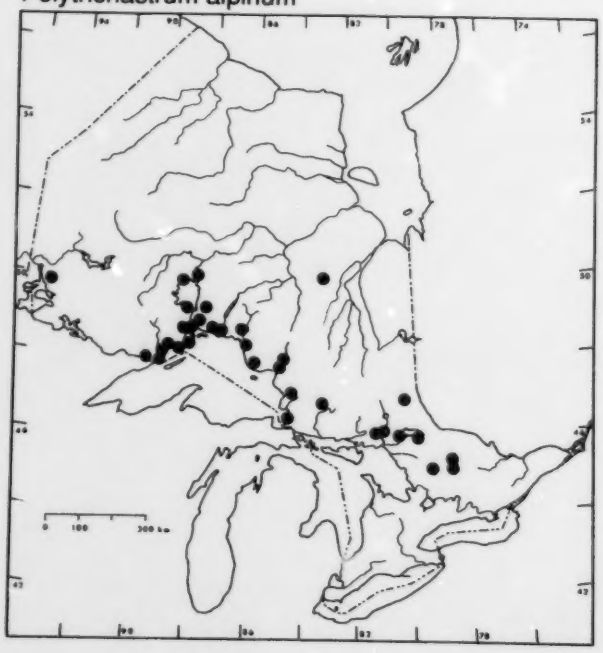
Pohlia sphagnicola



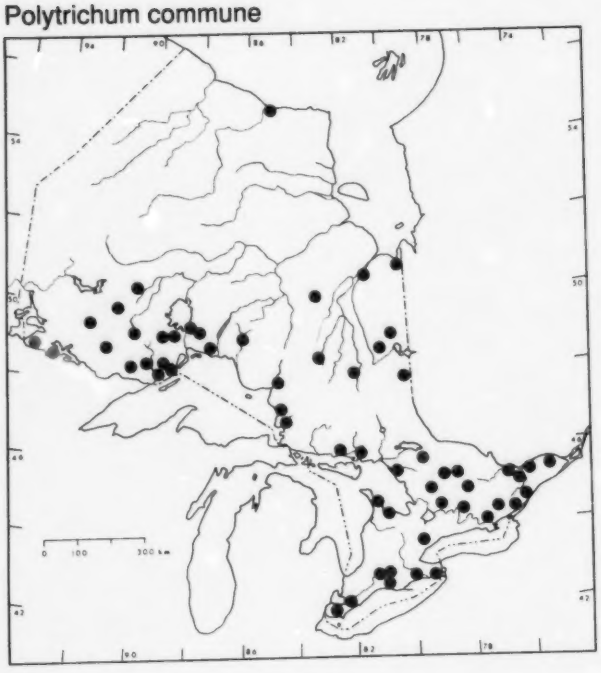
Pohlia wahlenbergii



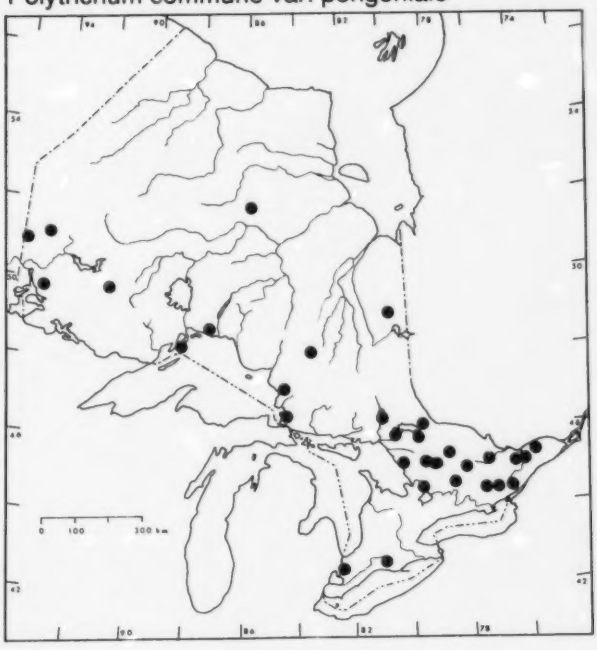
Polytrichastrum alpinum



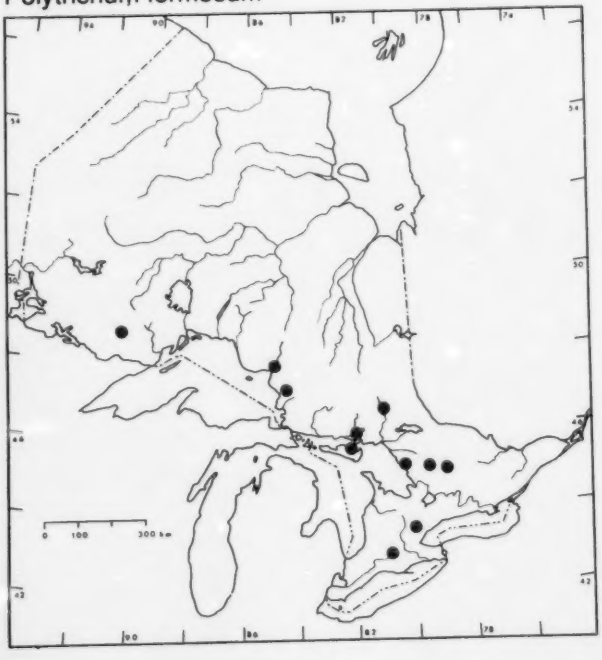
Polytrichum commune



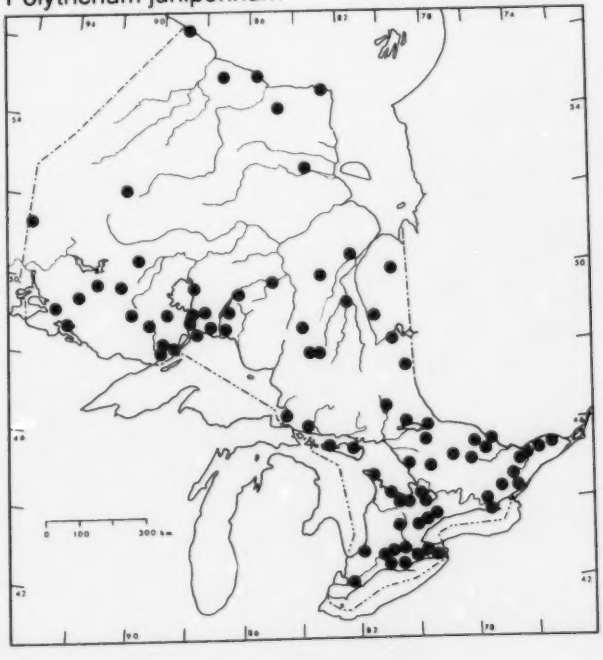
Polytrichum commune var. perigoniale



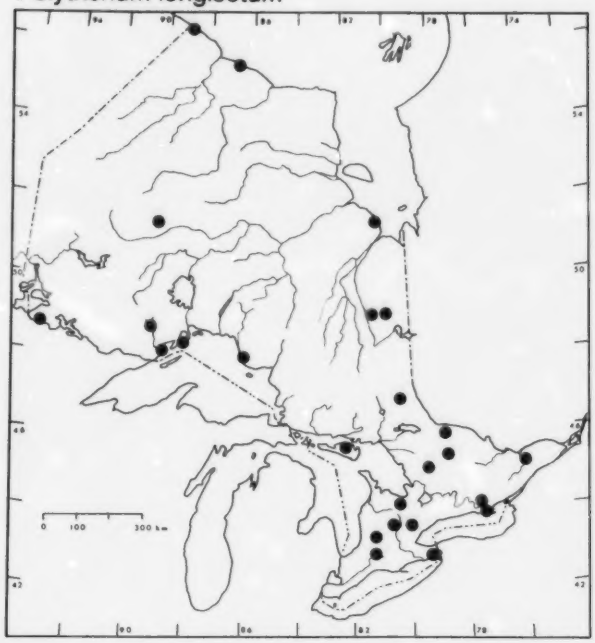
Polytrichum formosum



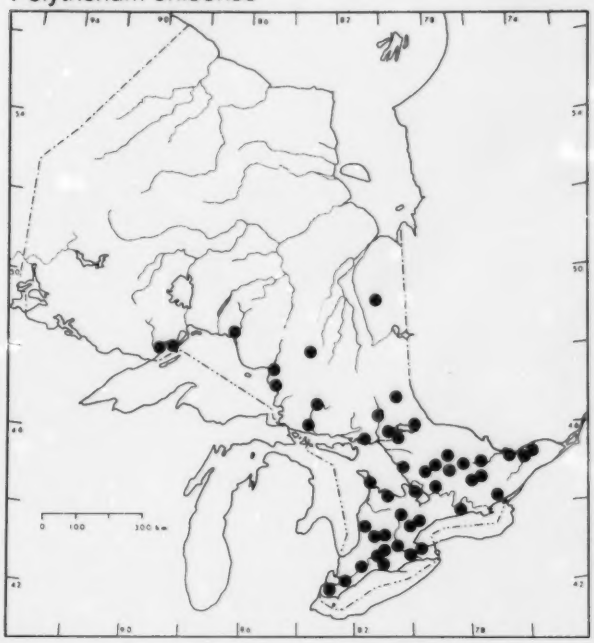
Polytrichum juniperinum



Polytrichum longisetum



Polytrichum ohioense



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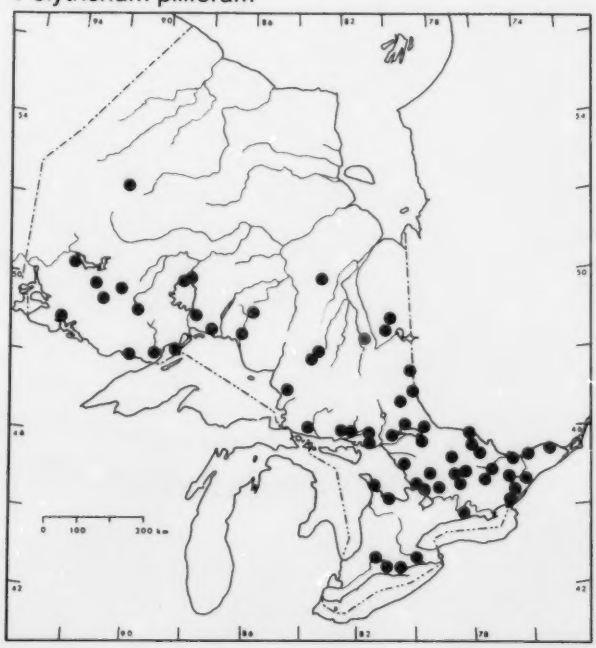
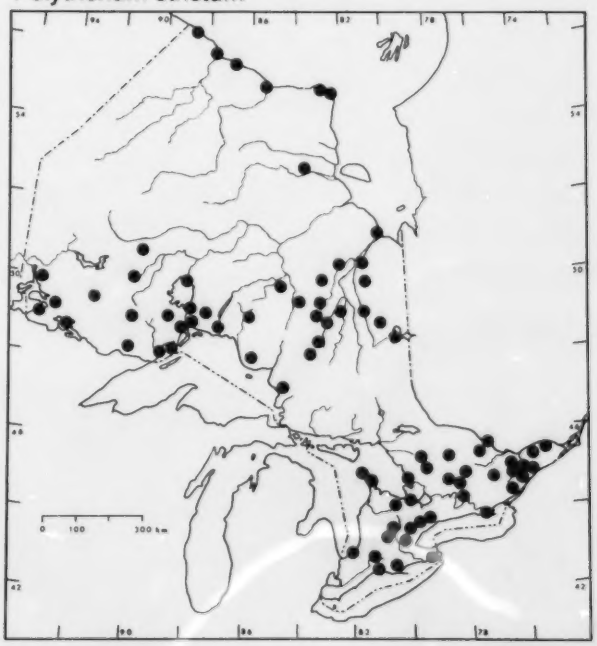
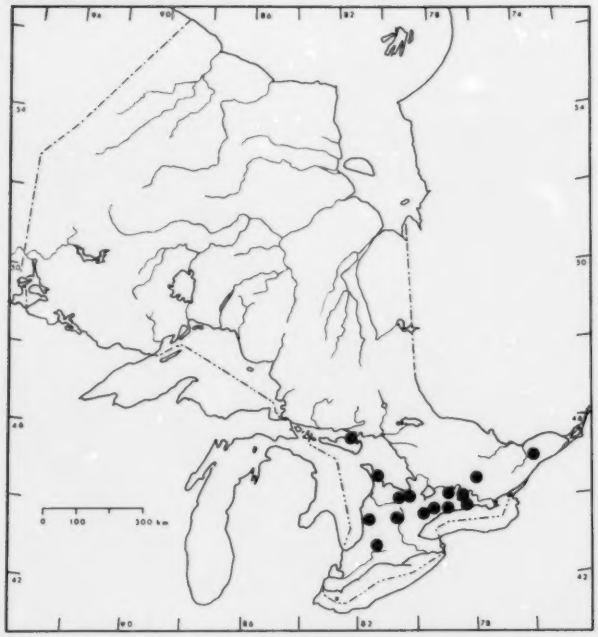


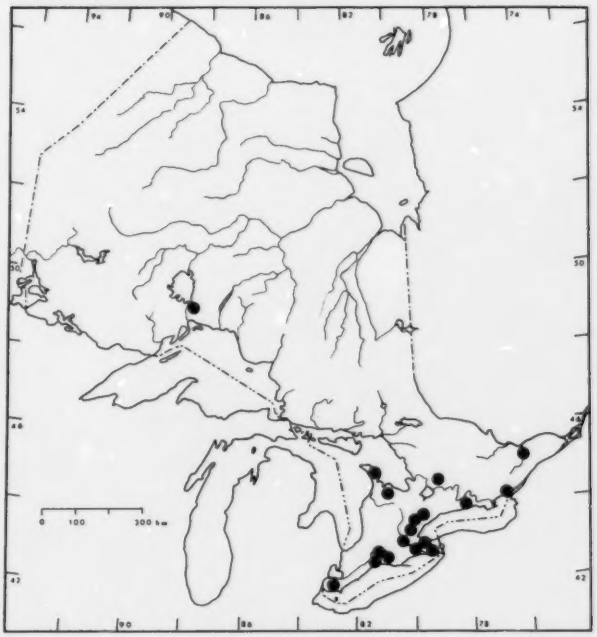
Polytrichum strictum



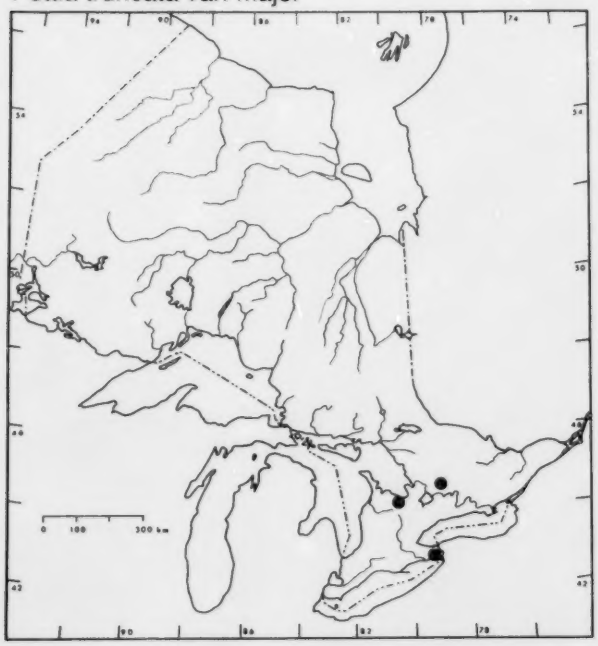
Pottia davalliana



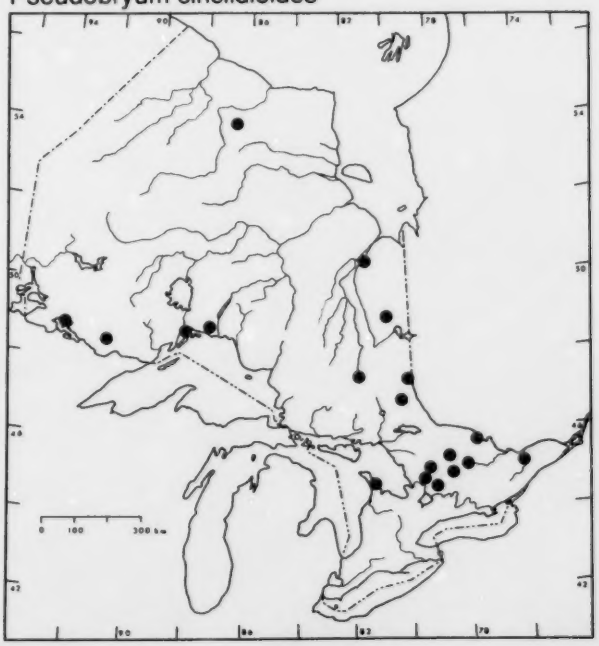
Pottia truncata



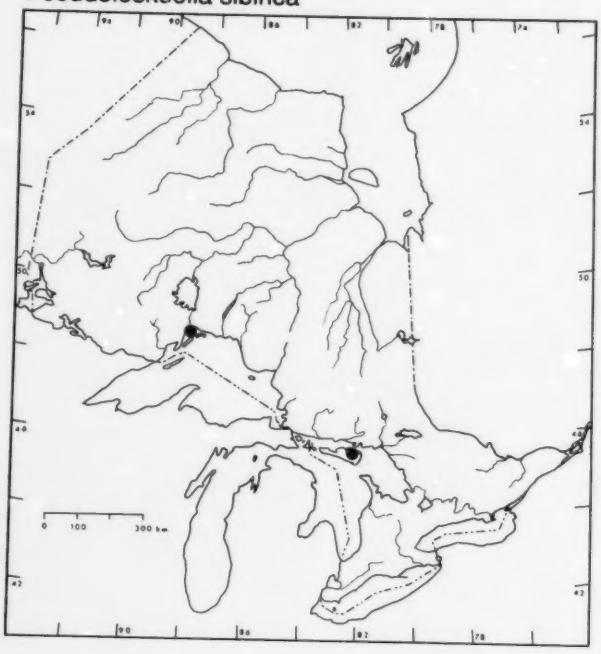
Pottia truncata var. major



Pseudobryum cinclidioides



Pseudoleskeella sibirica



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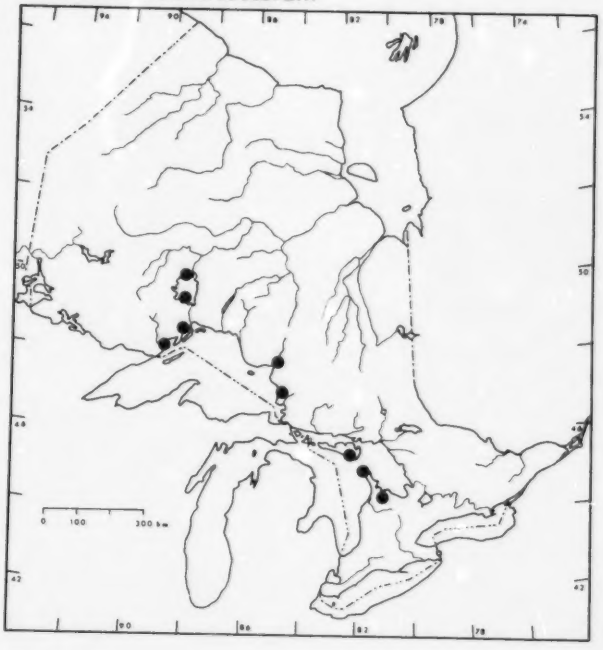
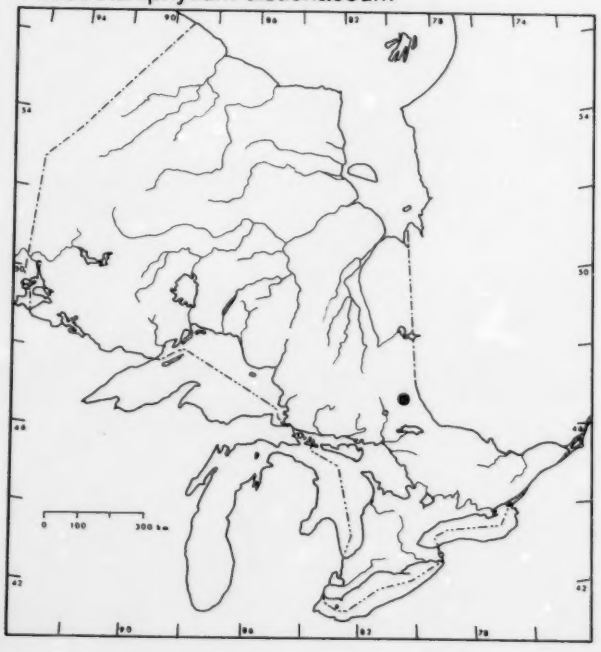
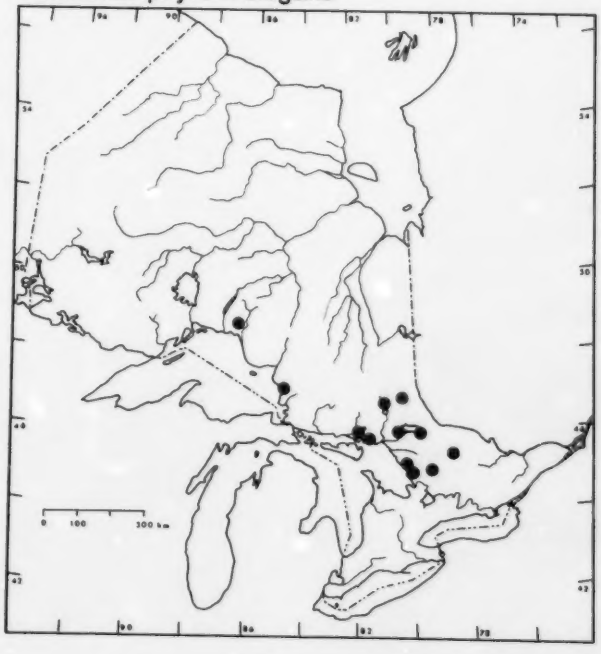


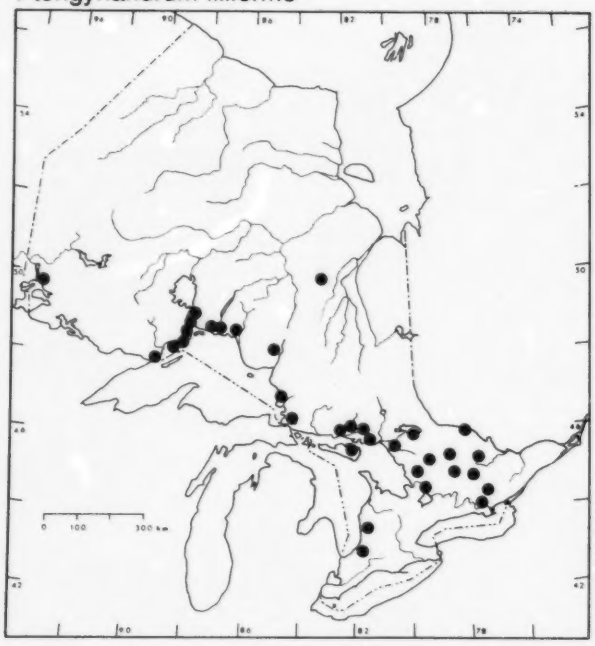
Pseudotaxiphyllum distichaceum



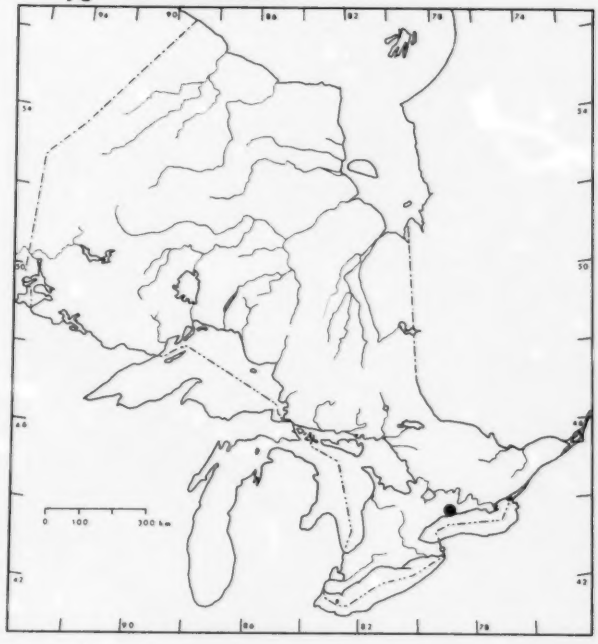
Pseudotaxiphyllum elegans



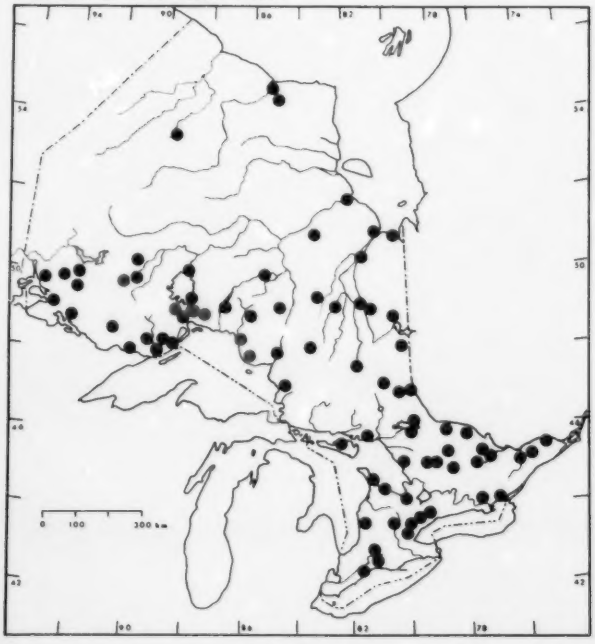
Pterigynandrum filiforme



Pterygoneurum ovatum

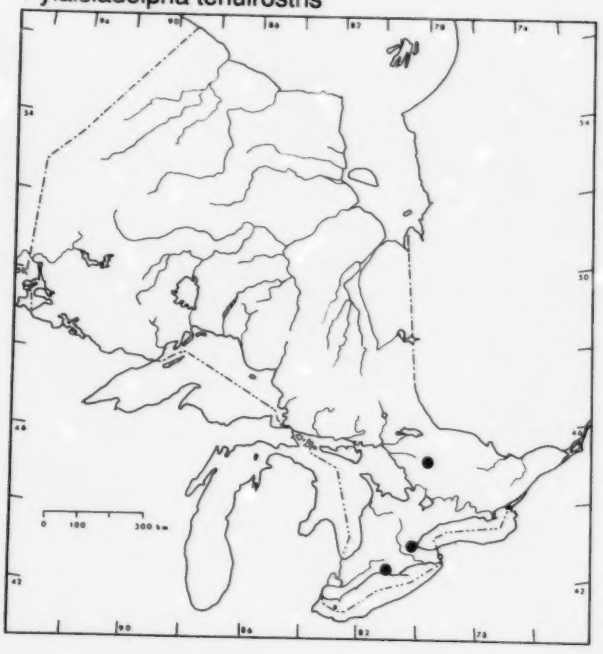


Ptilium crista-castrensis

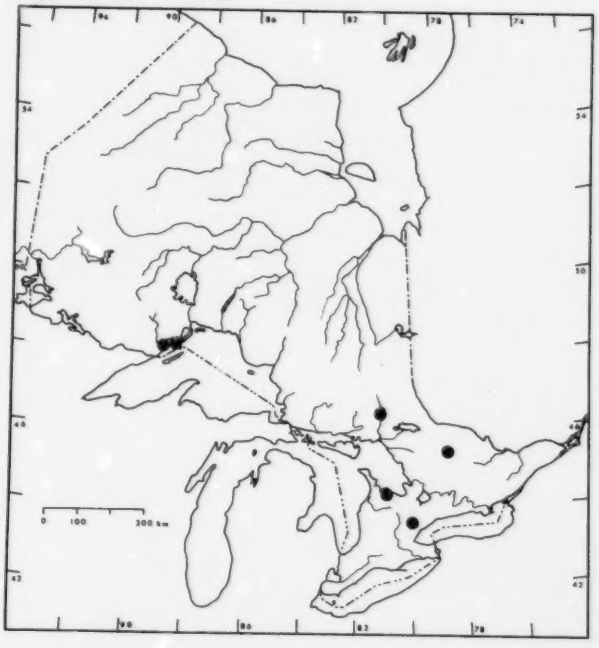


Ptychomitrium incurvum

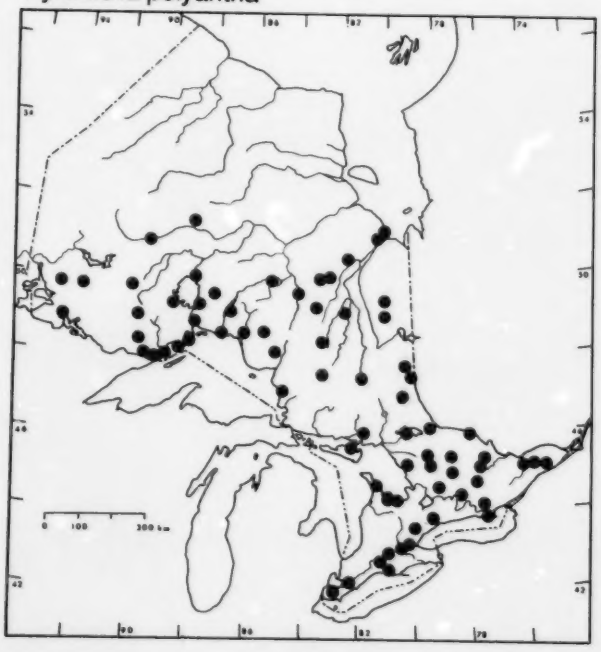
Pylaisiadelpha tenuirostris



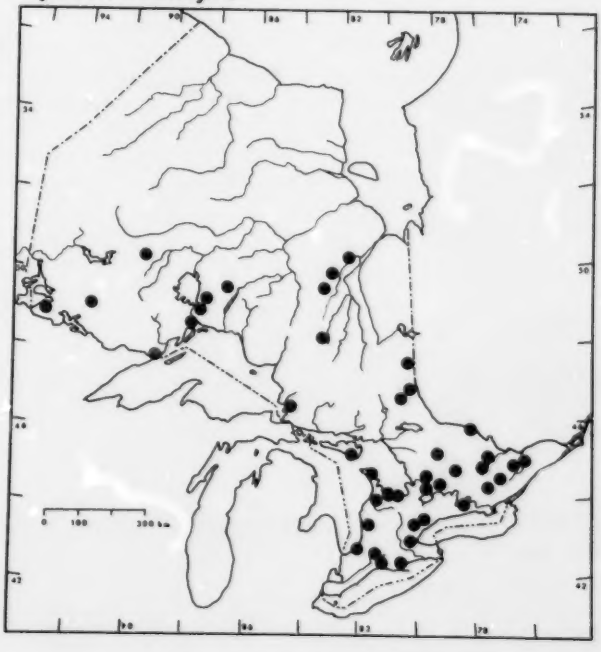
Pylaisiella intricata



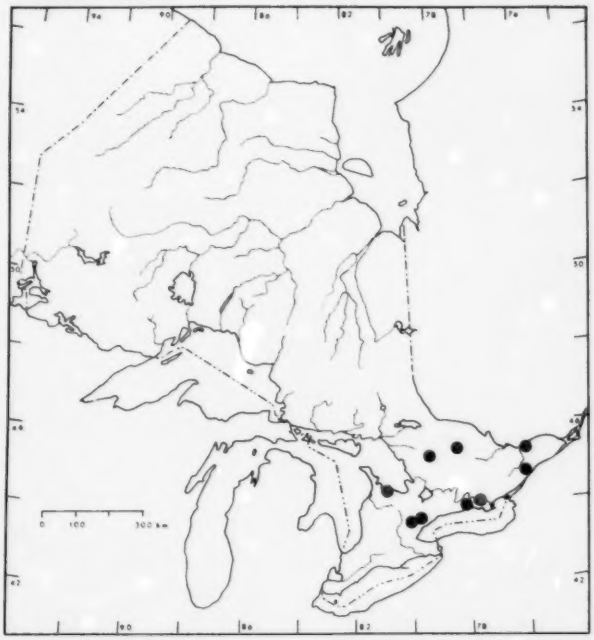
Pylaisiella polyantha



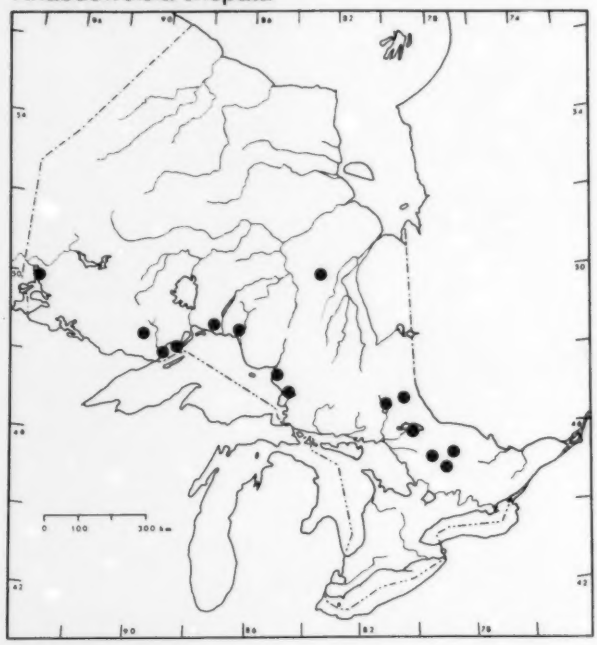
Pylaisiella selwynii



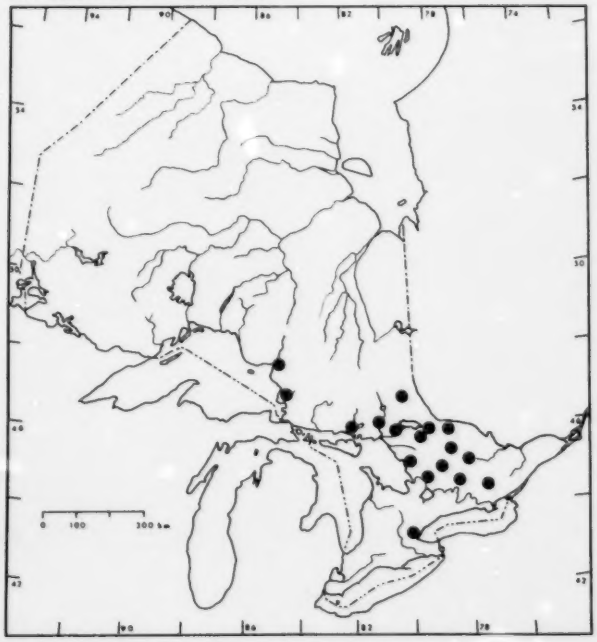
Rauiella scita



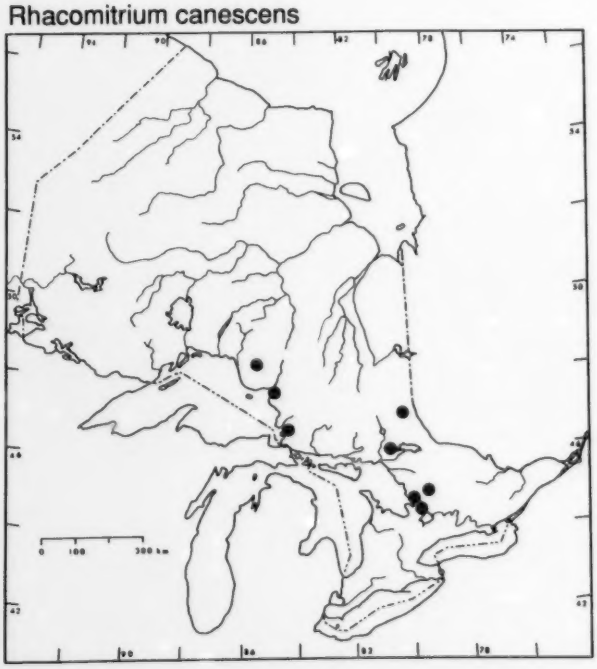
Rhabdoweisia crispata



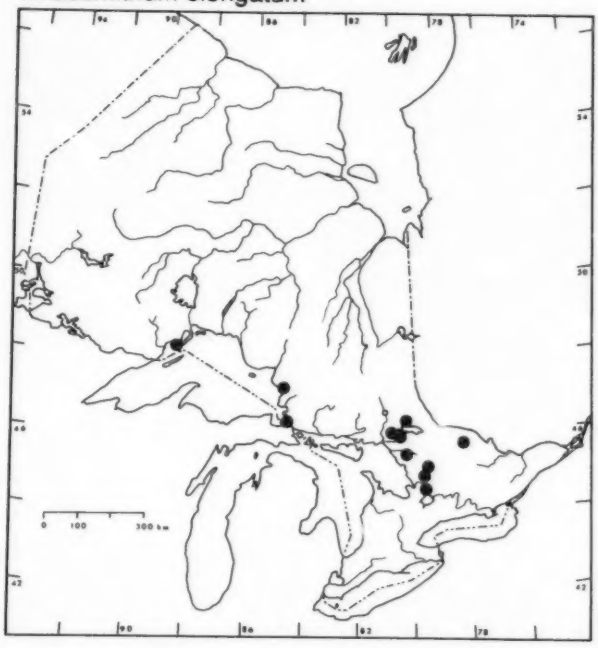
Rhacomitrium aciculare



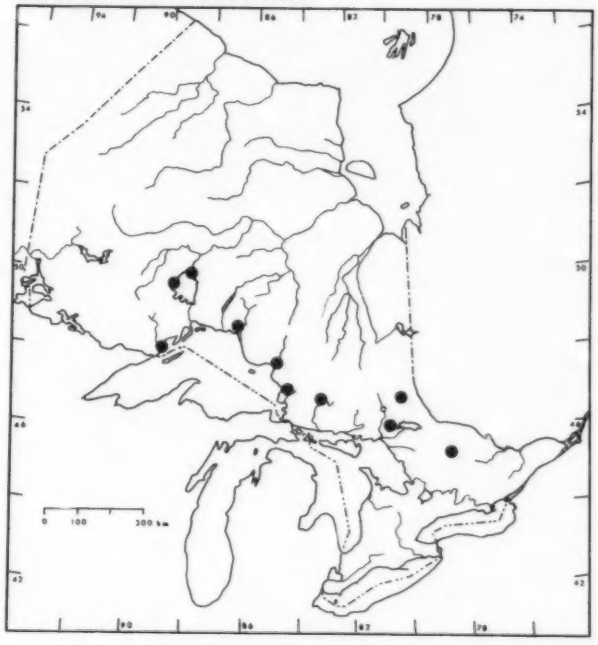
Rhacomitrium canescens



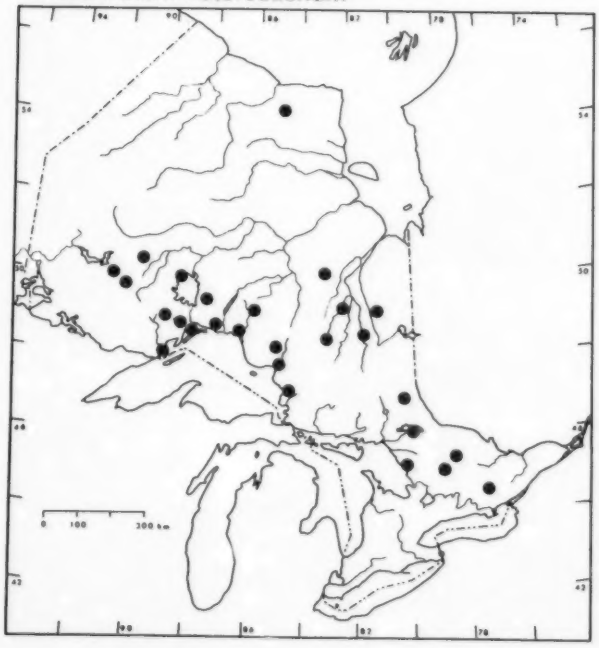
Rhacomitrium elongatum



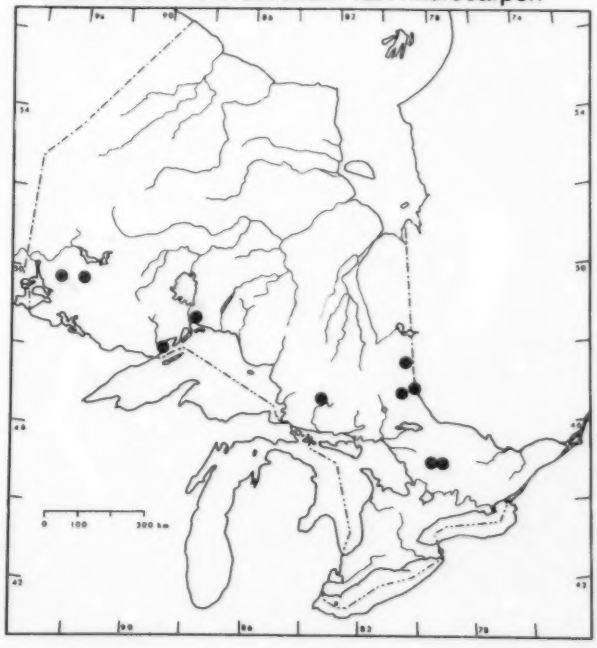
Rhacomitrium fasciculare



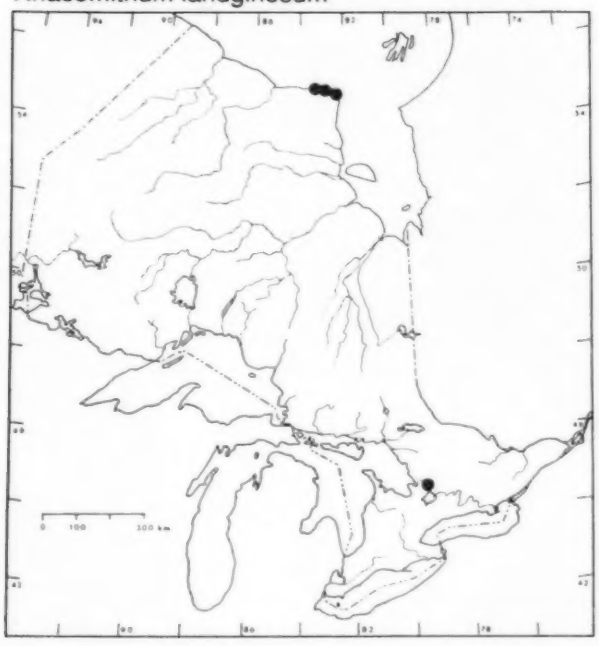
Rhacomitrium heterostichum



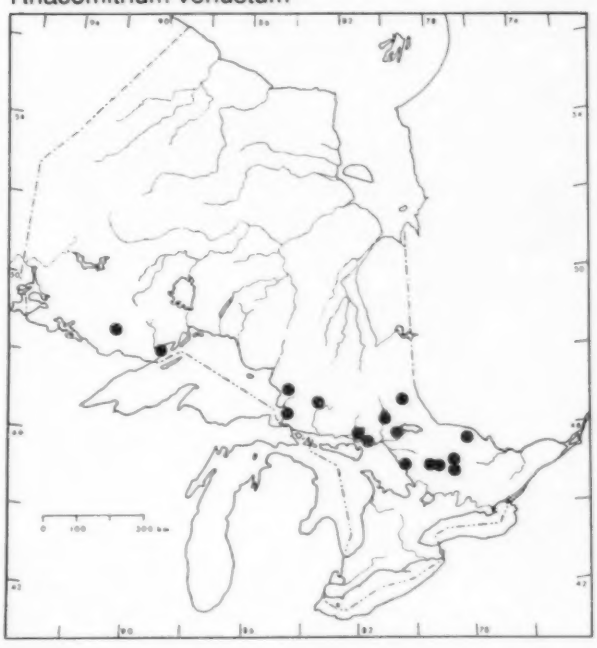
Rhacomitrium heterostichum var. microcarpon



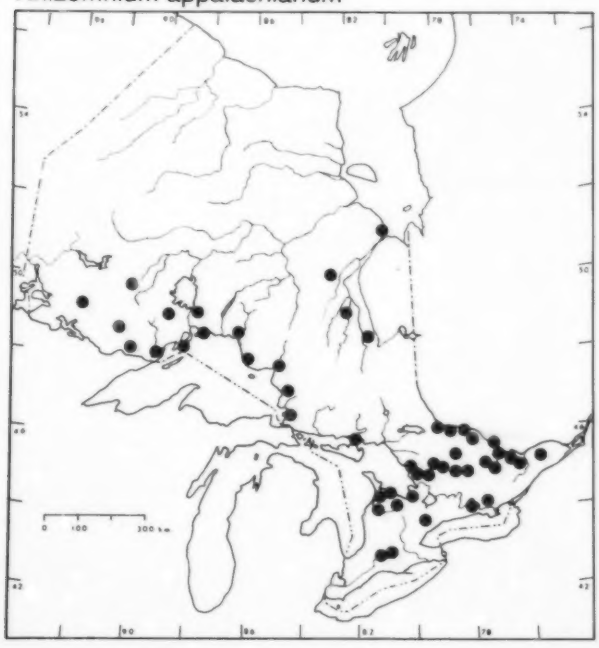
Rhacomitrium lanuginosum



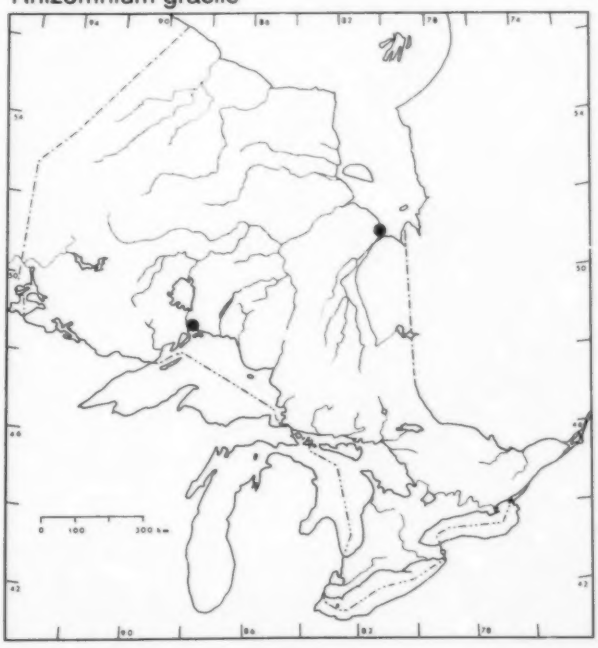
Rhacomitrium venustum



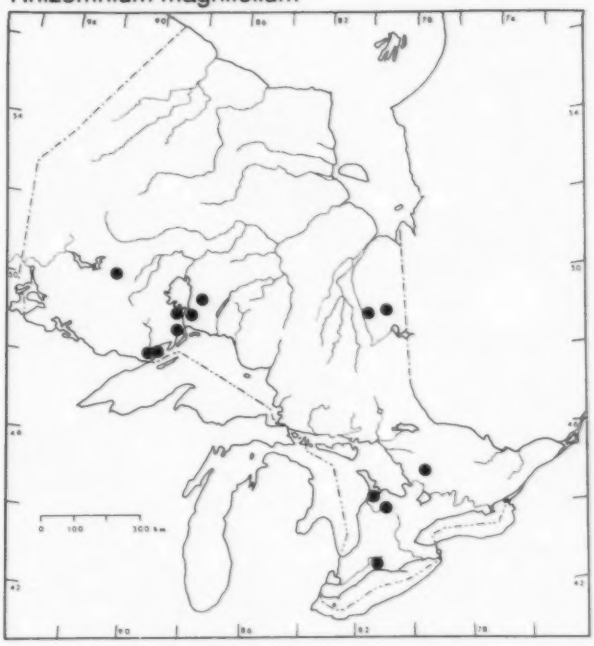
Rhizomnium appalachianum



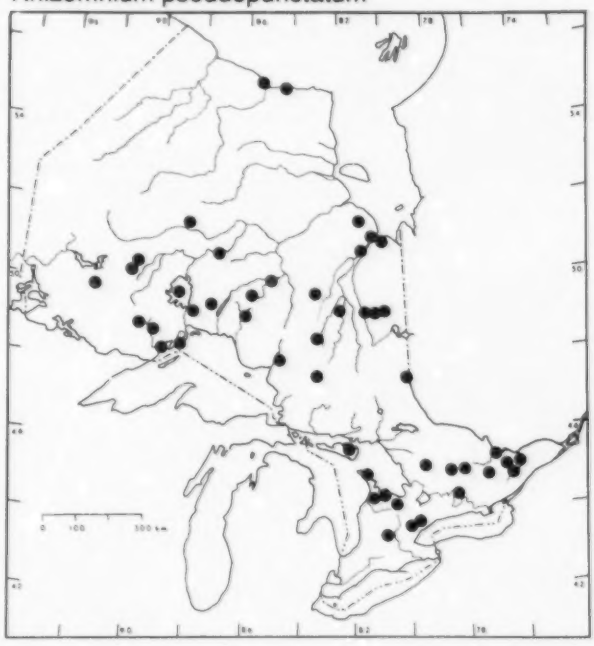
Rhizomnium gracile



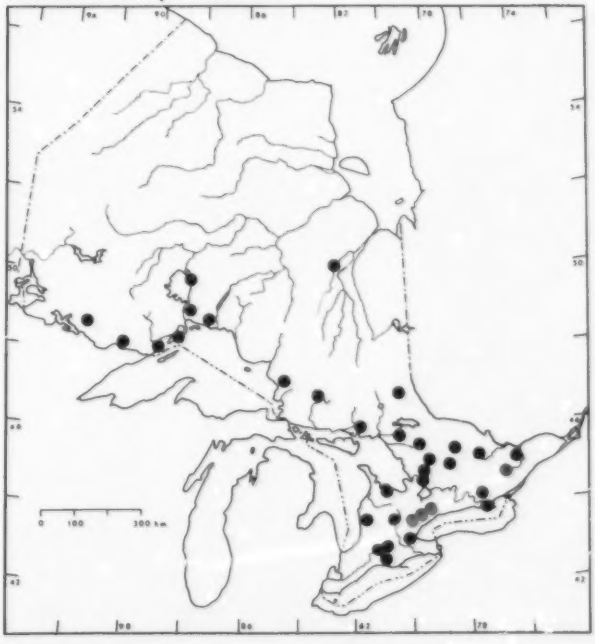
Rhizomnium magnifolium



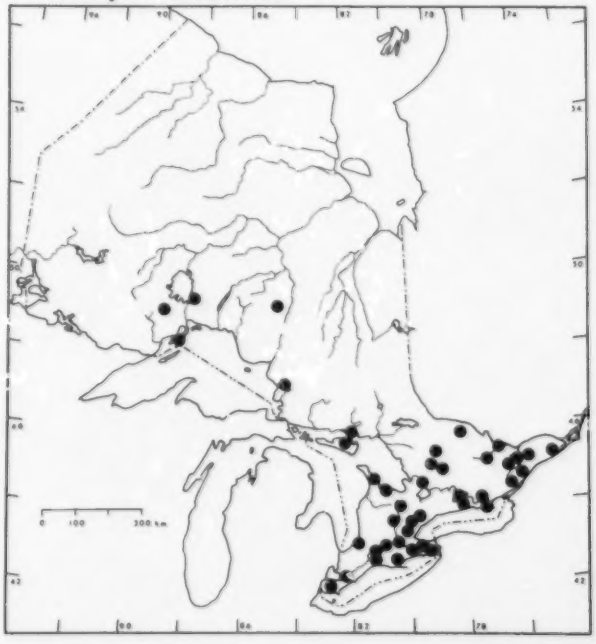
Rhizomnium pseudopunctatum



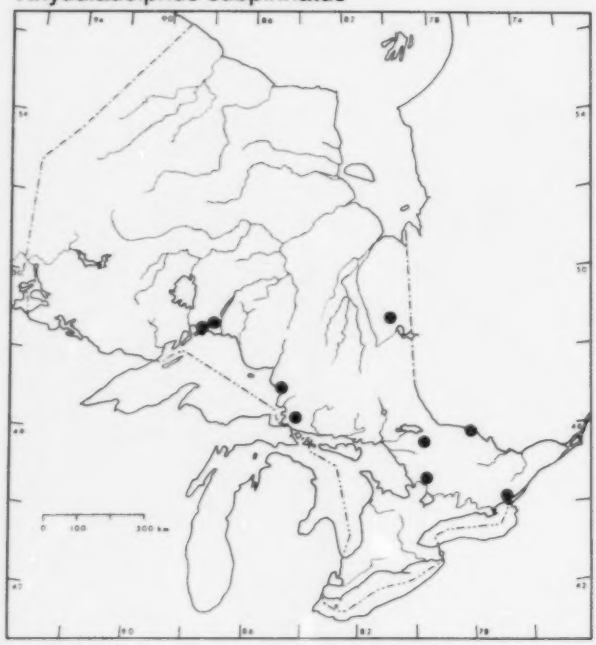
Rhizomnium punctatum



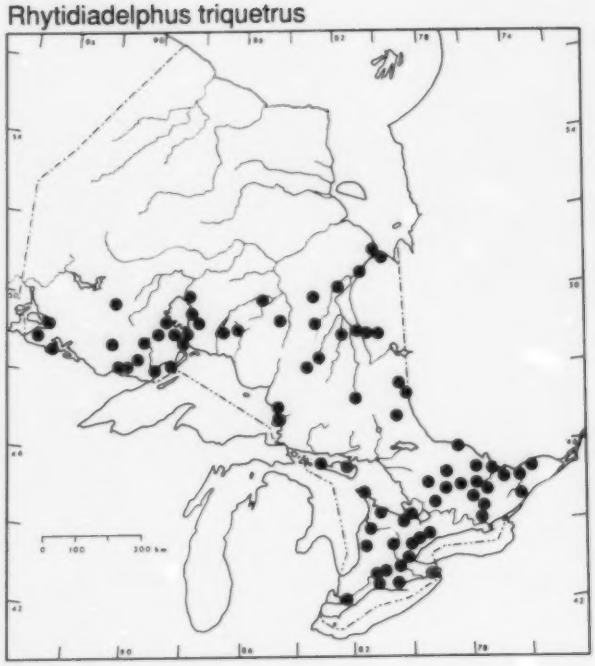
Rhodobryum ontariense



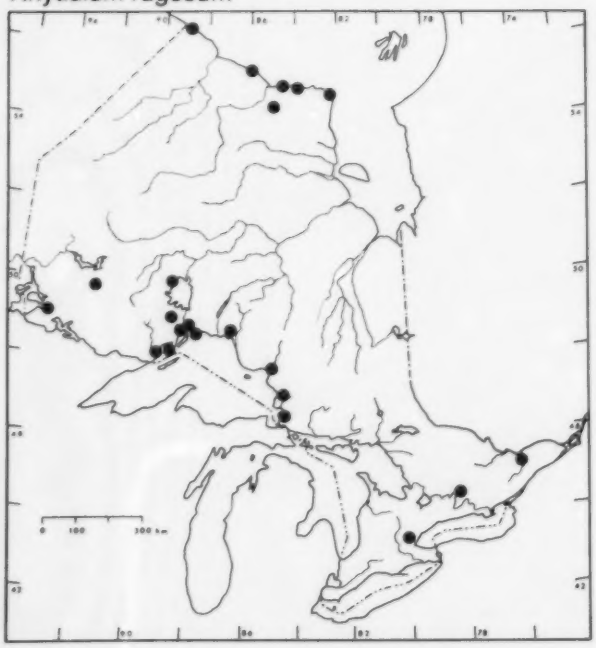
Rhytidiadelphus subpinnatus



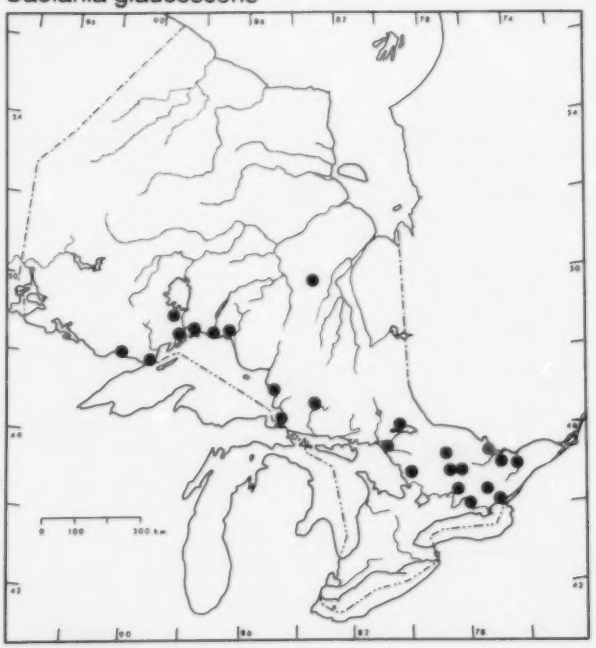
Rhytidiadelphus triquetrus



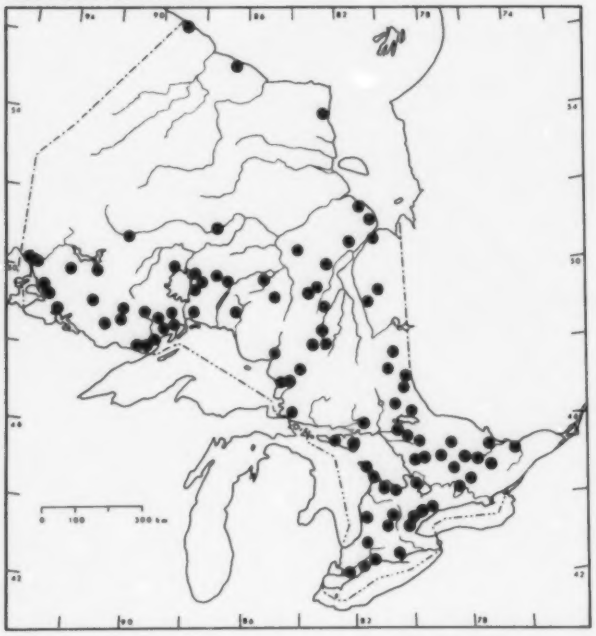
Rhytidium rugosum



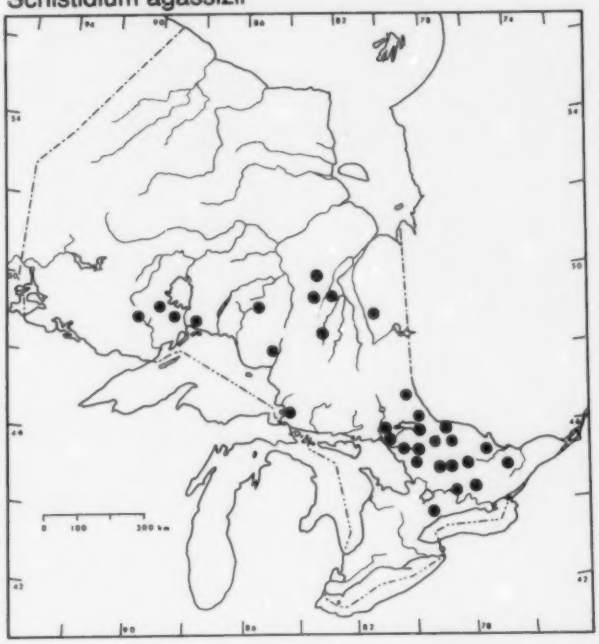
Saelania glaucescens



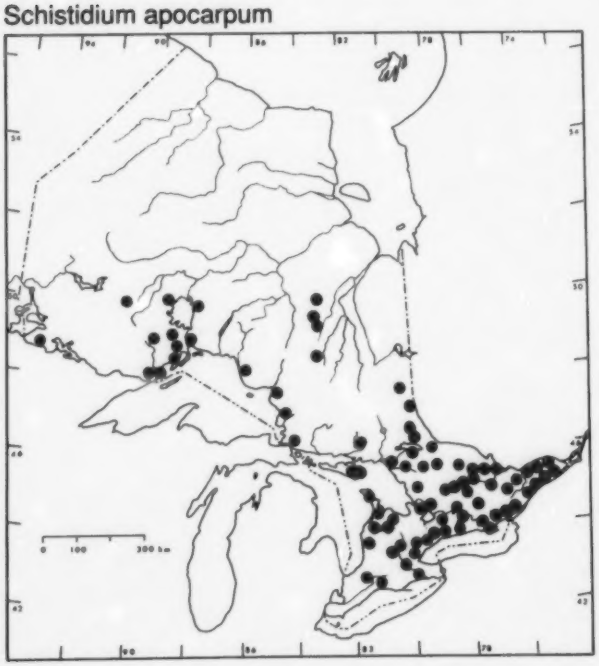
Sanionia uncinata



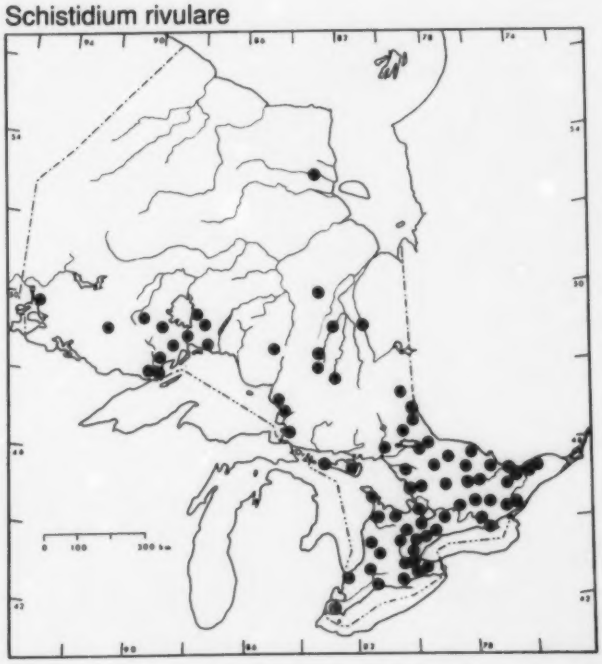
Schistidium agassizii



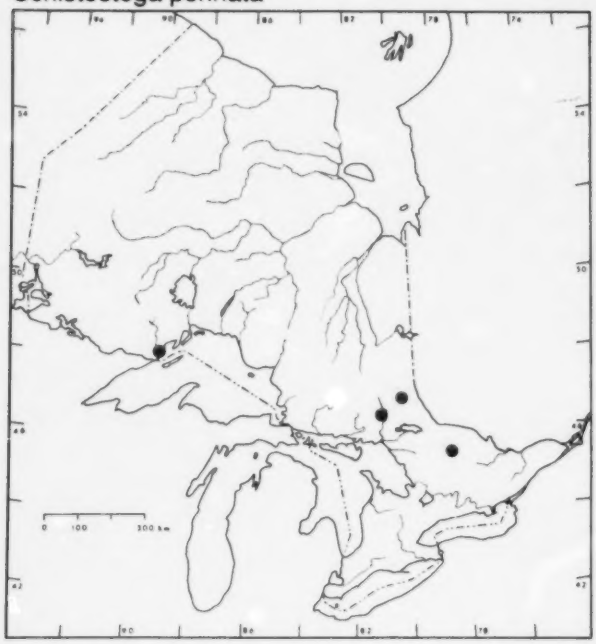
Schistidium apocarpum



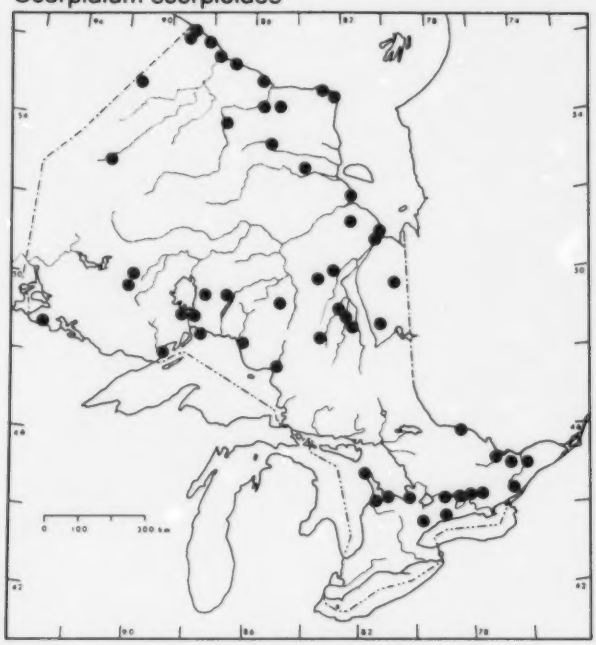
Schistidium rivulare



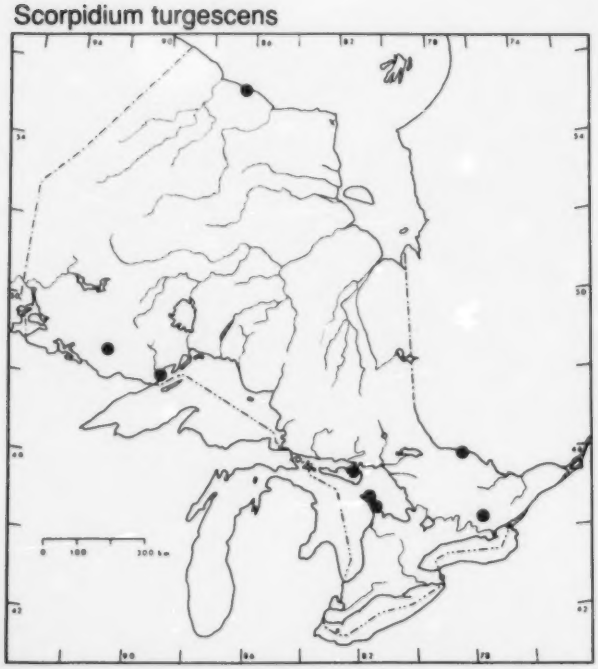
Schistostega pennata



Scorpidium scorpioides

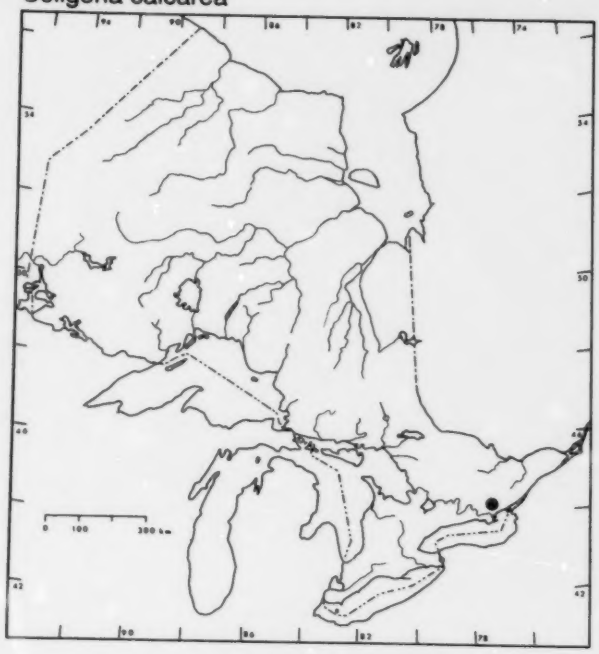


Scorpidium turgescens

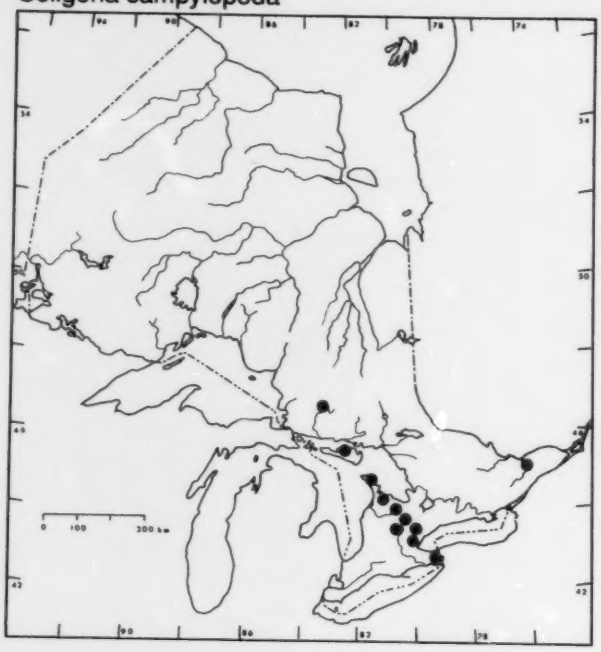


Seligeria brevifolia

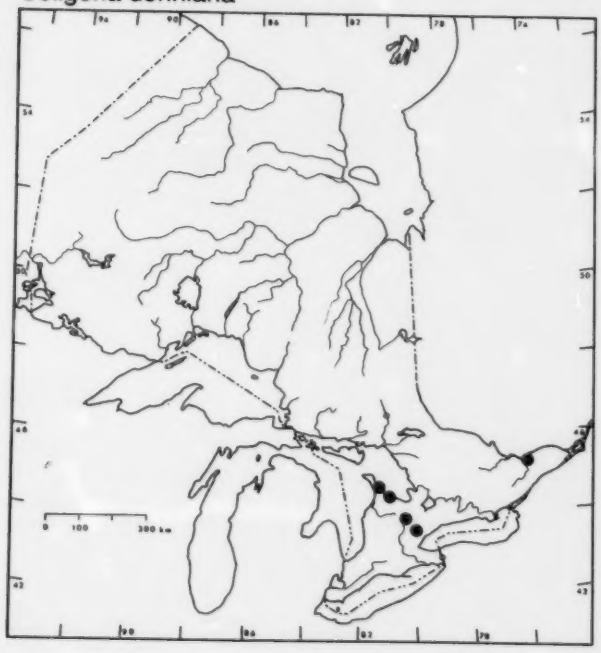
Seligeria calcarea



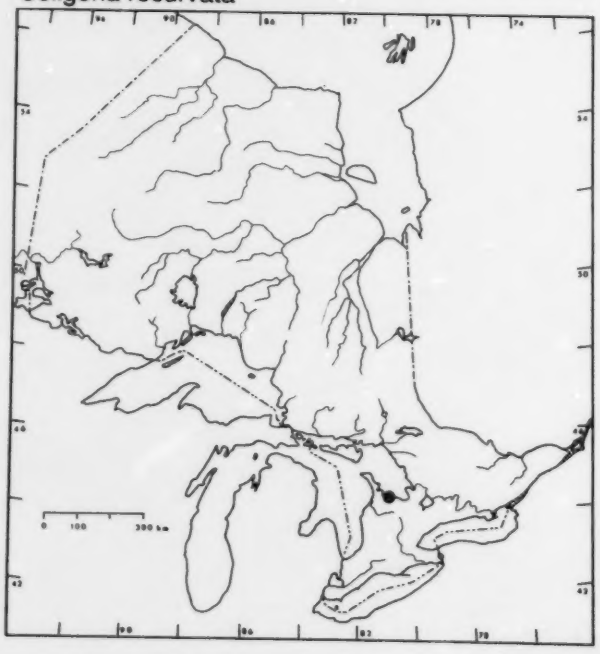
Seligeria campylopoda



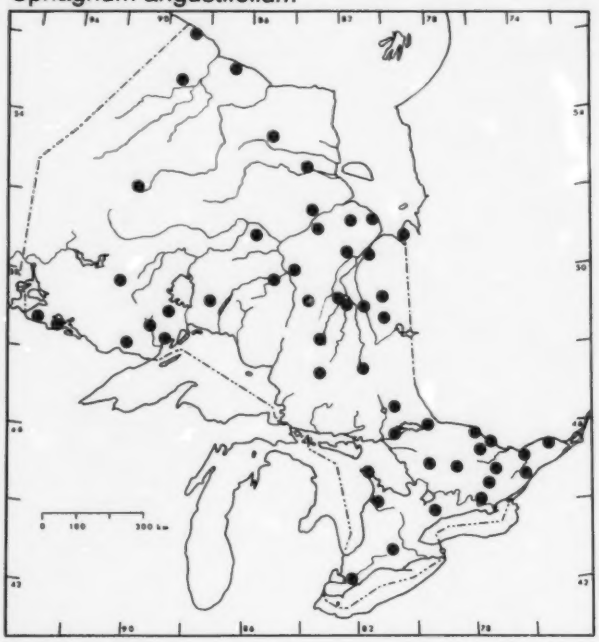
Seligeria donniana



Seligeria recurvata



Sphagnum angustifolium



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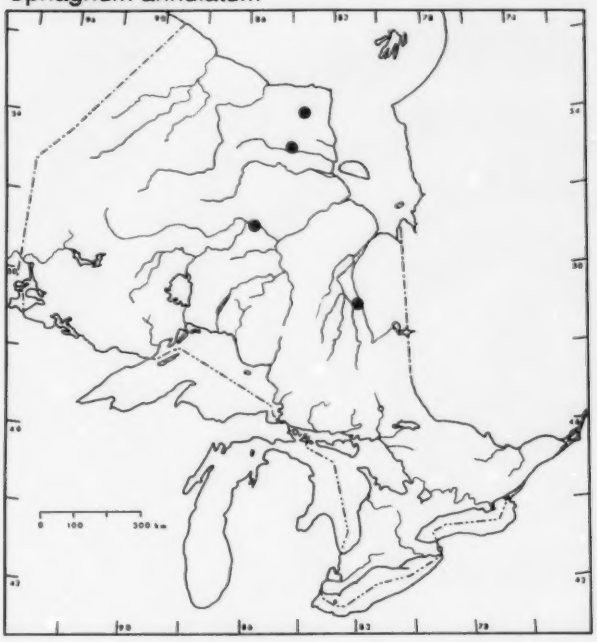

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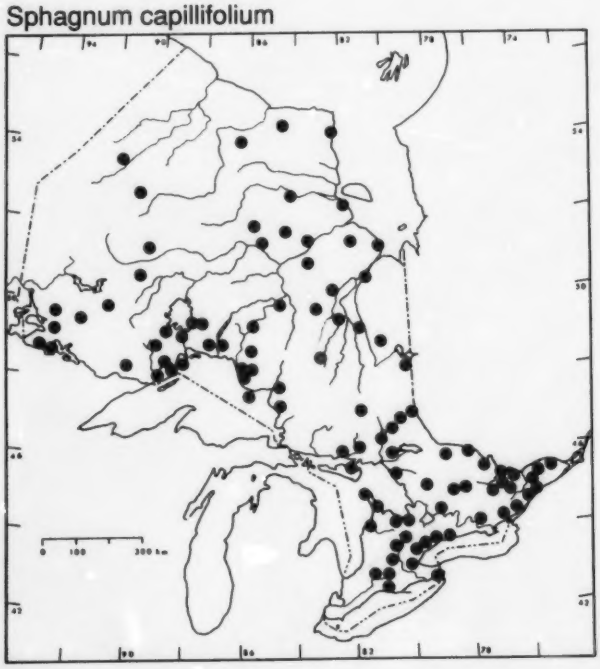
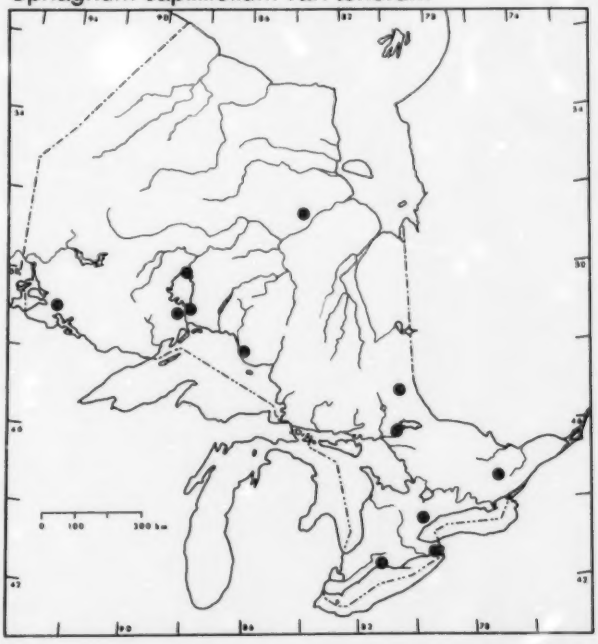
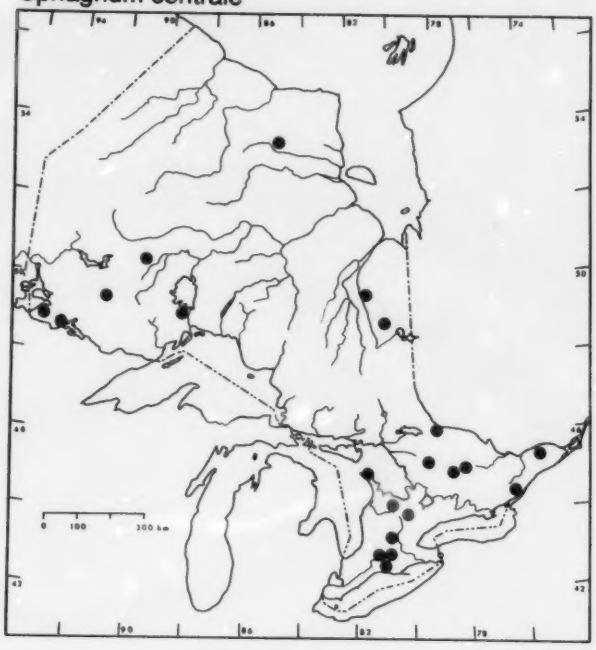


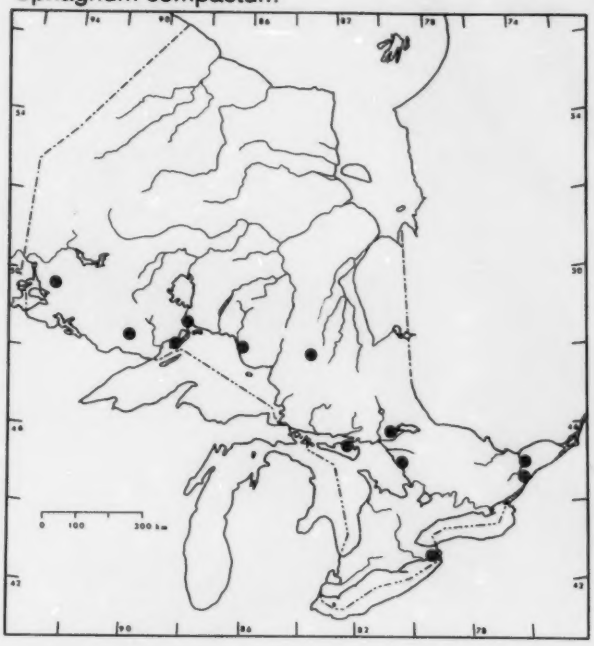
Sphagnum capillifolium var. tenerum



Sphagnum centrale



Sphagnum compactum



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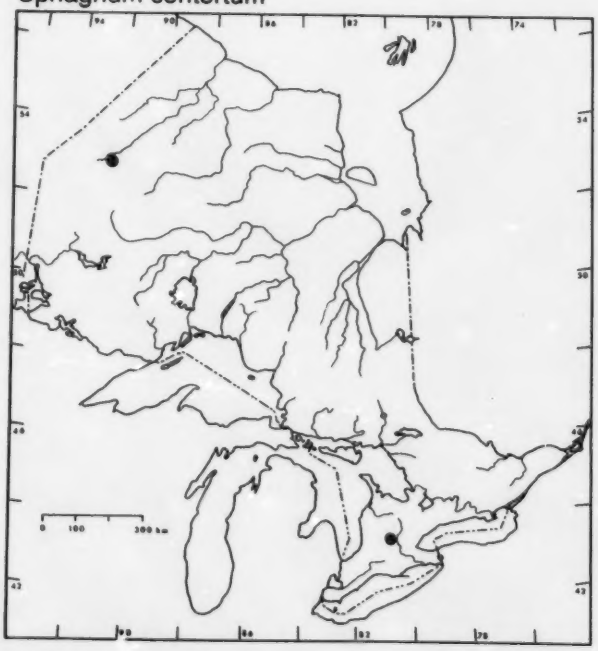

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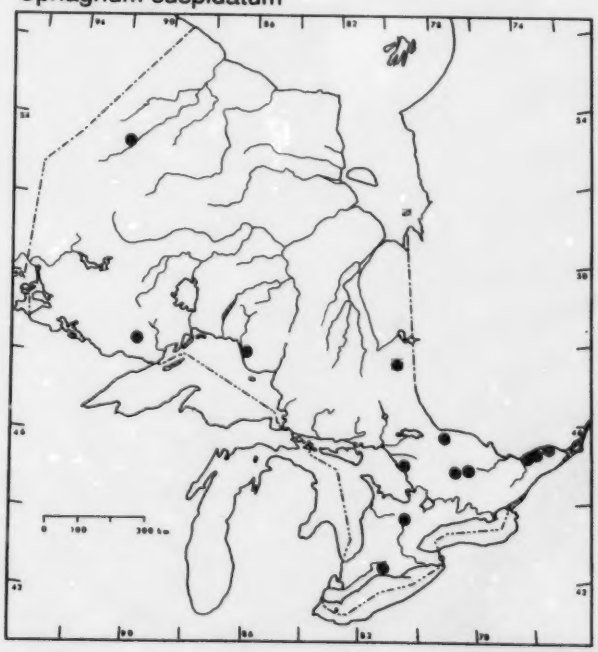

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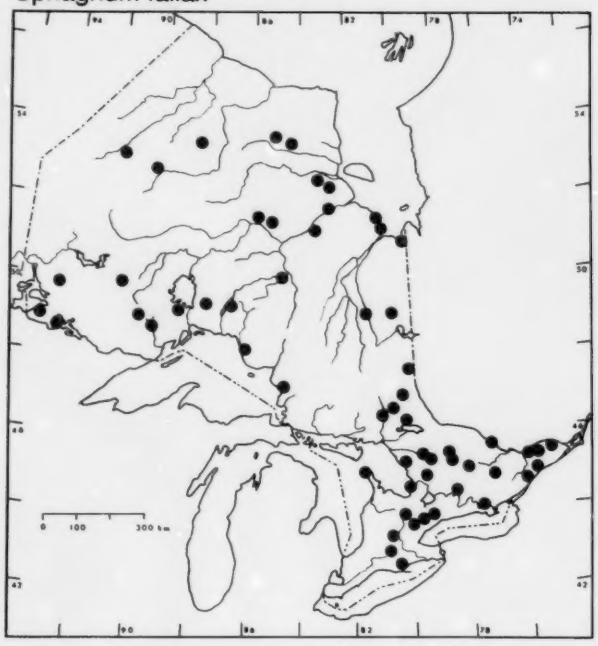
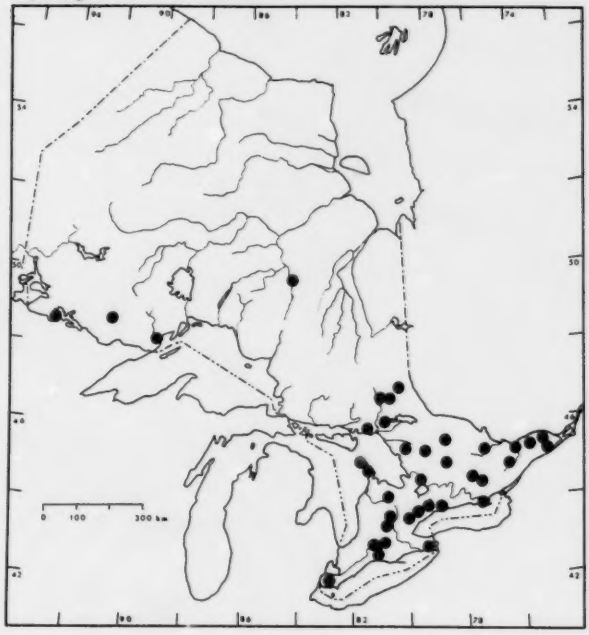
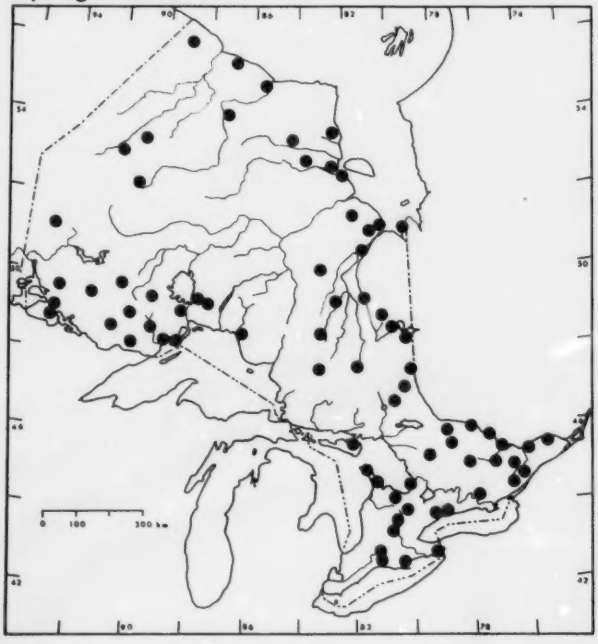


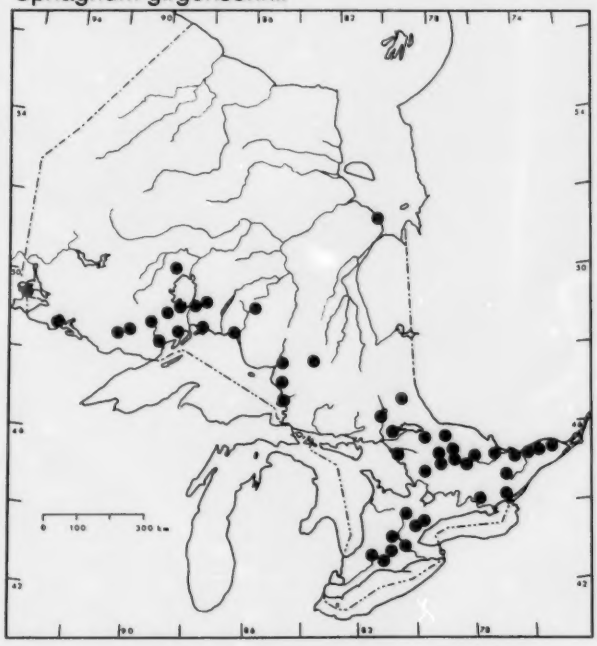
Sphagnum fimbriatum



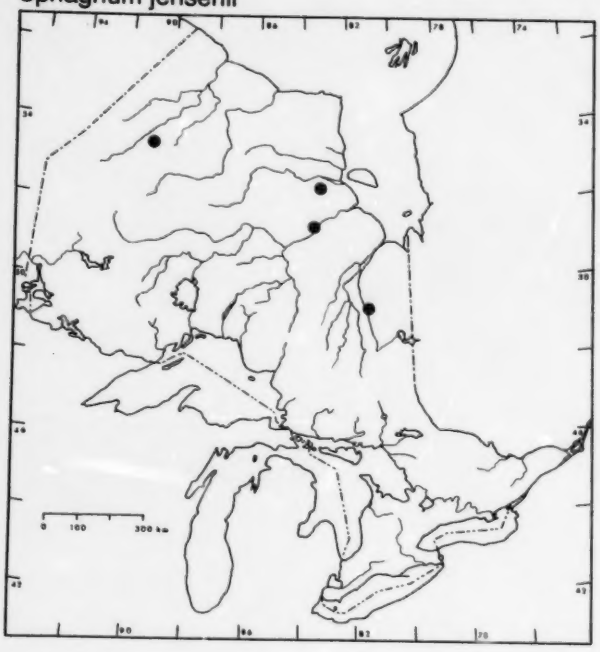
Sphagnum fuscum



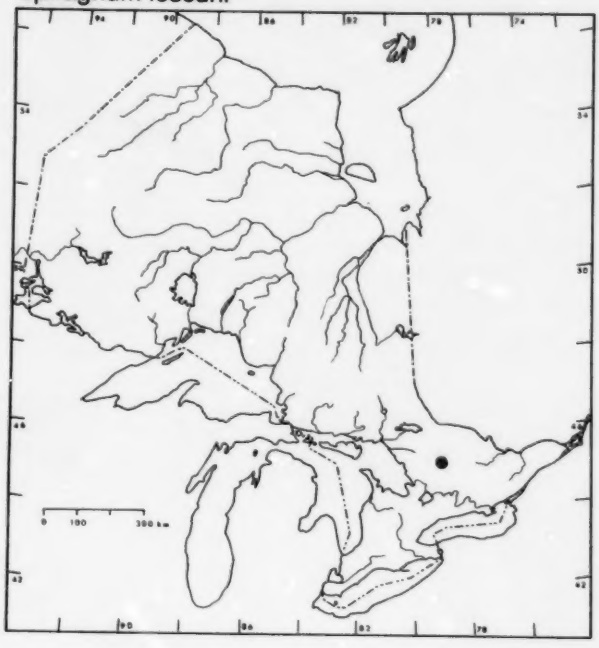
Sphagnum girgensohnii



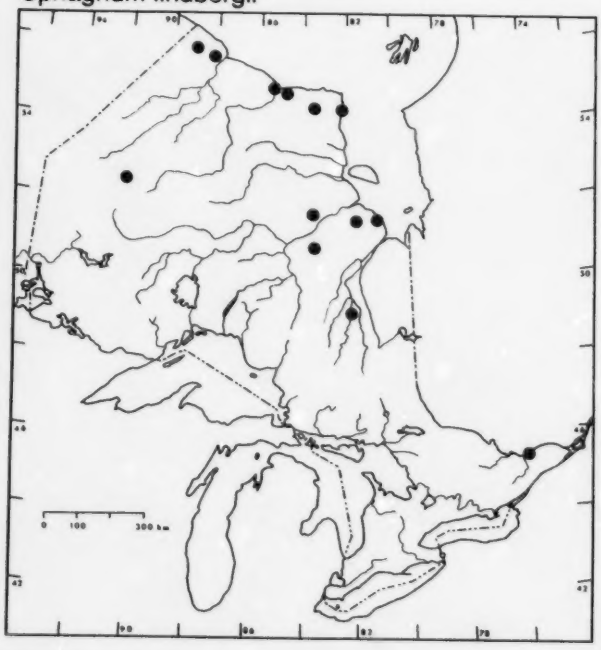
Sphagnum jensenii



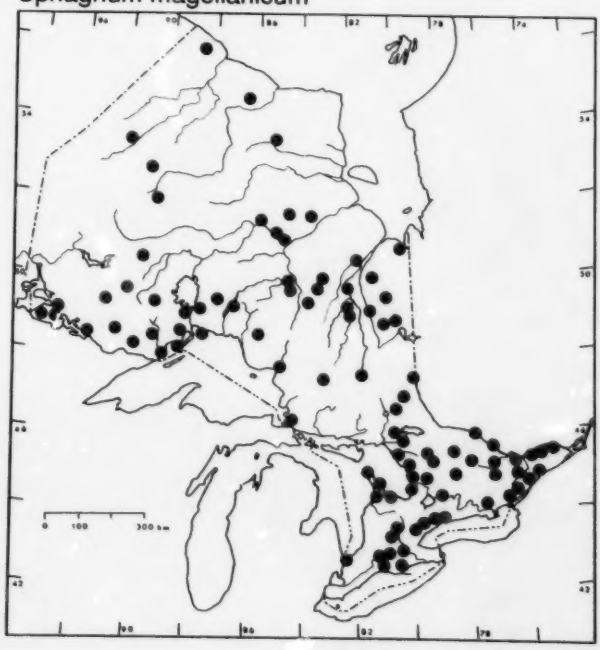
Sphagnum lescurii



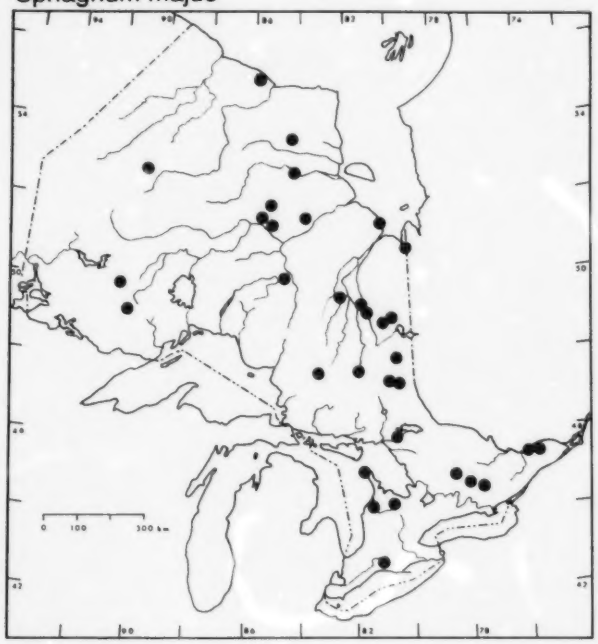
Sphagnum lindbergii



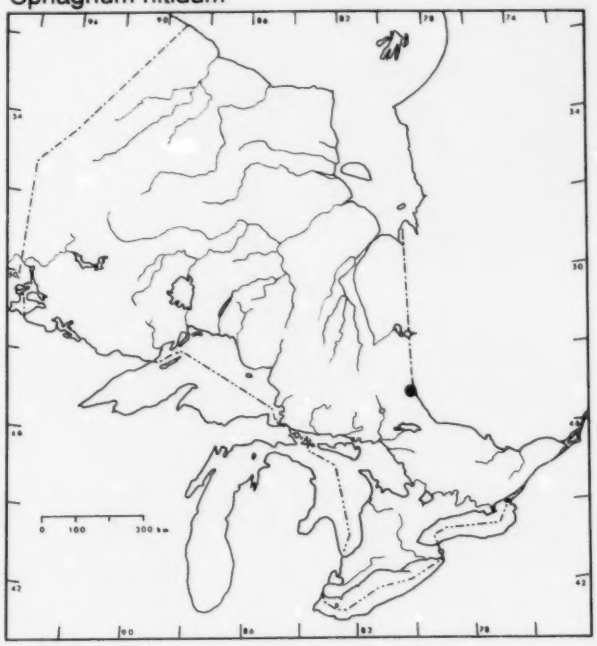
Sphagnum magellanicum



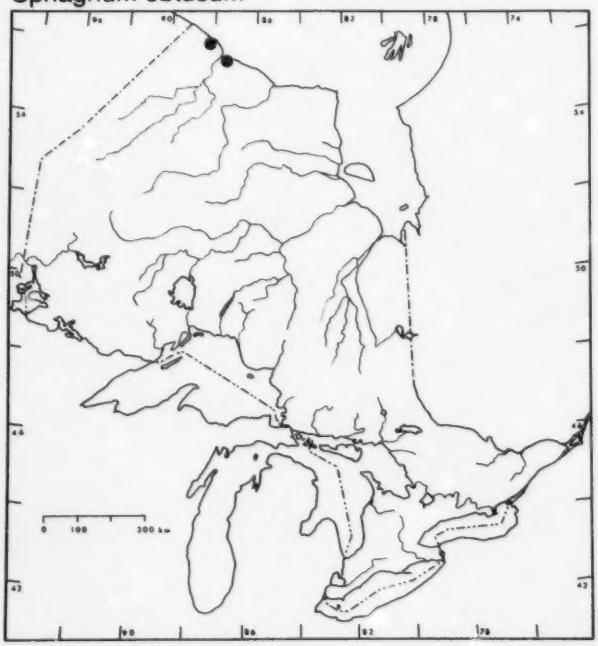
Sphagnum majus



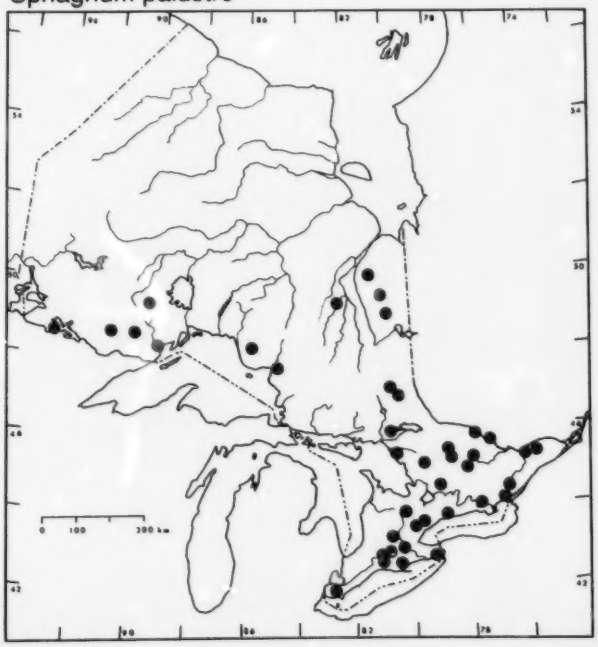
Sphagnum nitidum



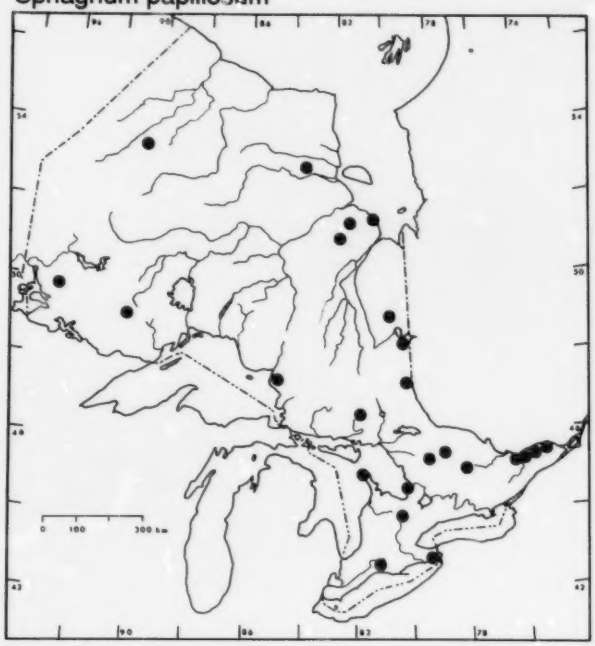
Sphagnum obtusum



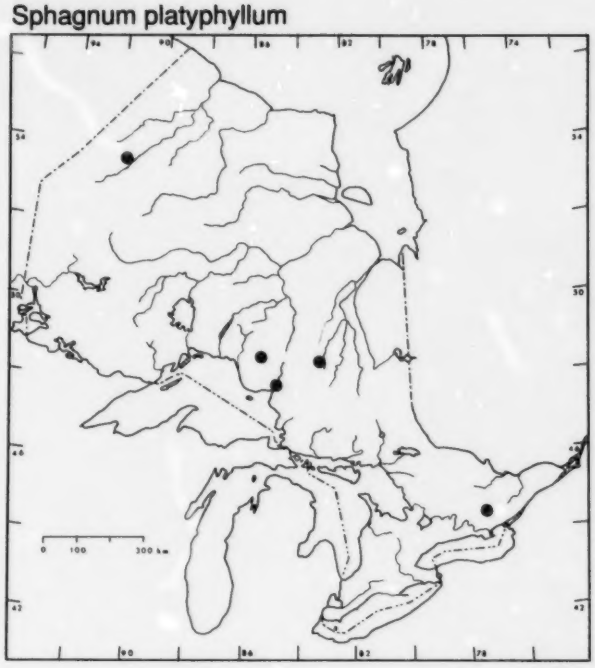
Sphagnum palustre



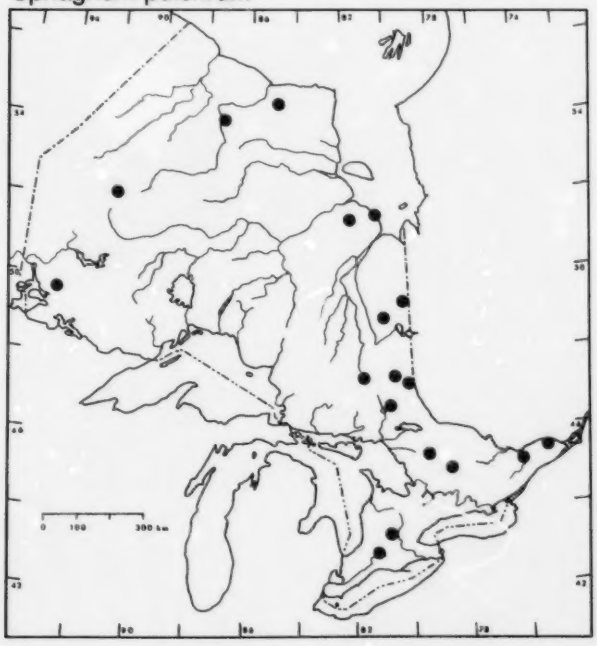
Sphagnum papillosum



Sphagnum platyphyllum



Sphagnum pulchrum



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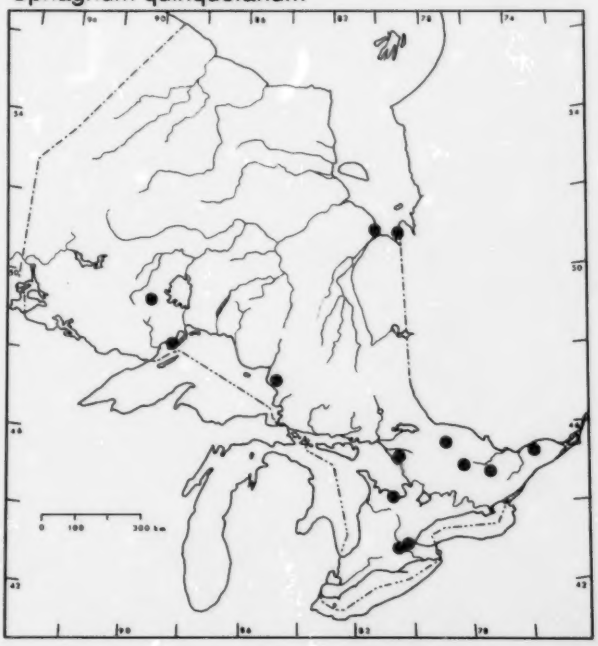

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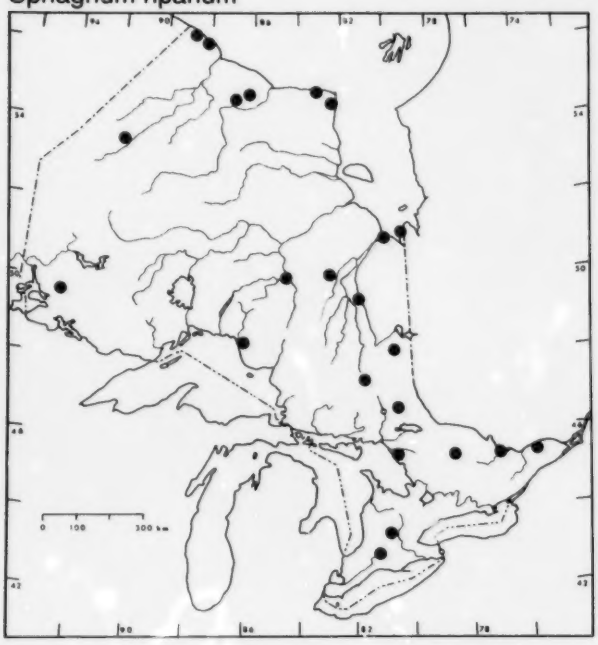
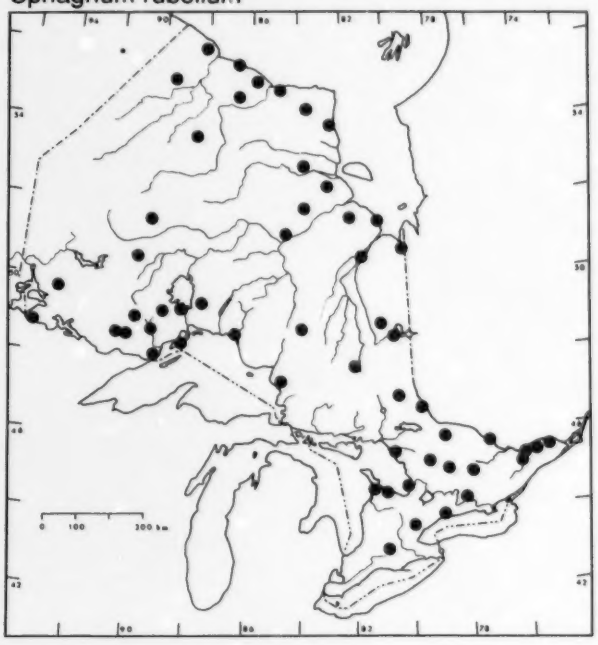
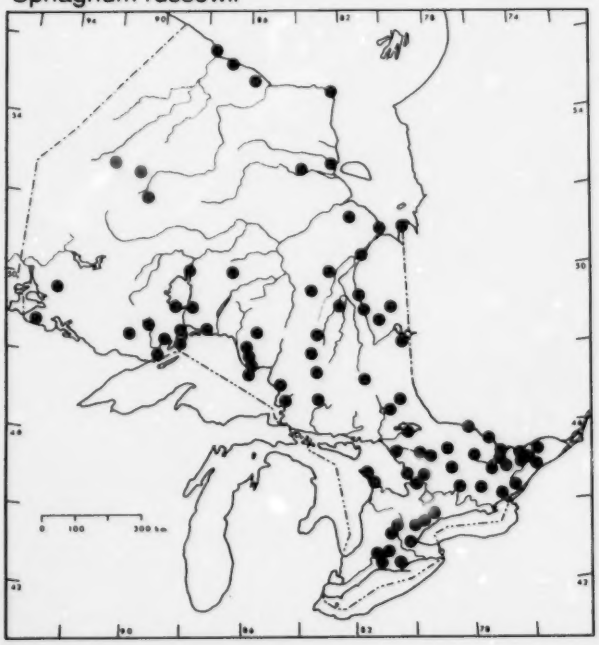


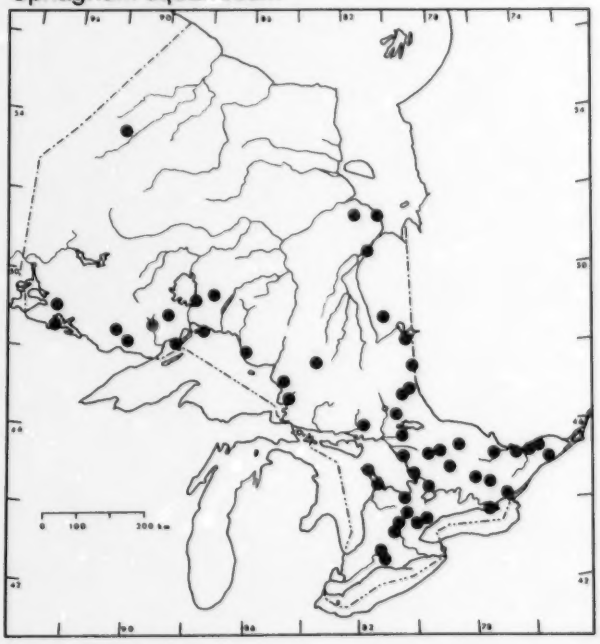
Sphagnum rubellum



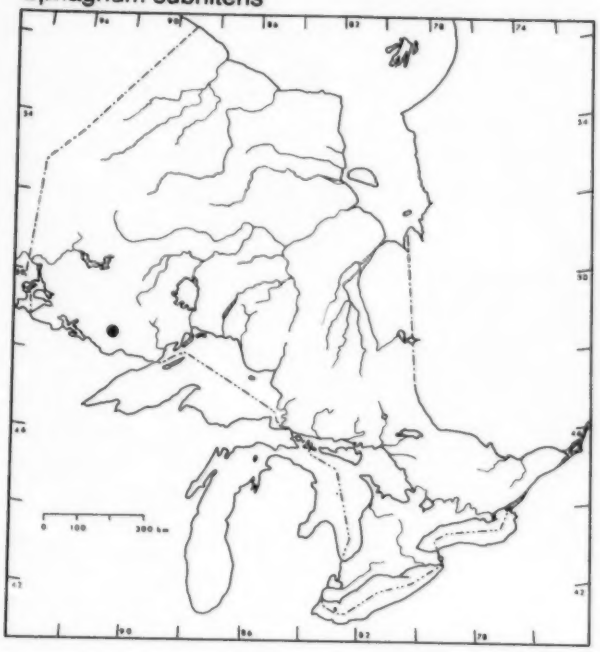
Sphagnum russowii



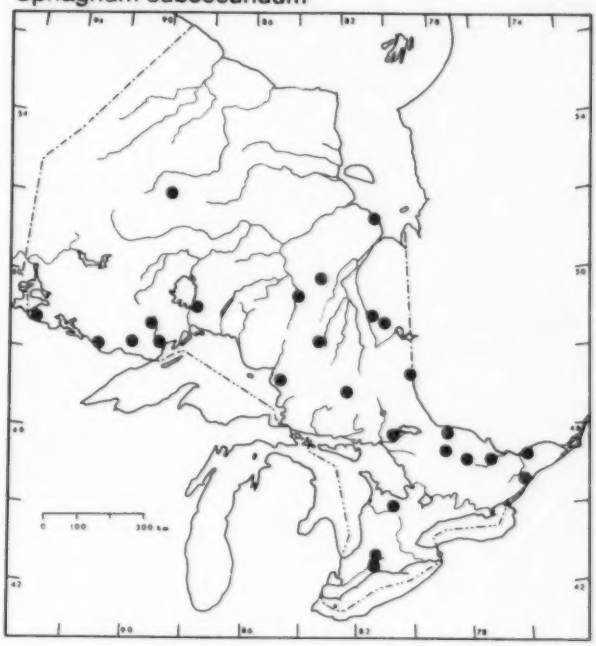
Sphagnum squarrosum



Sphagnum subnitens



Sphagnum subsecundum



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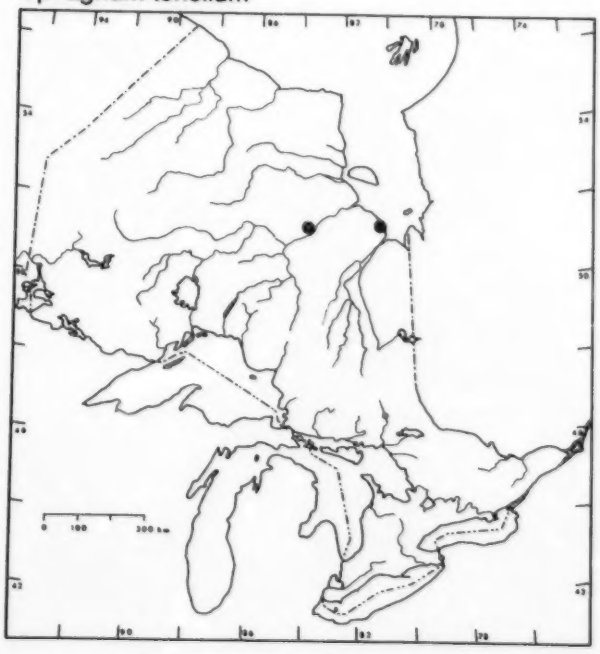
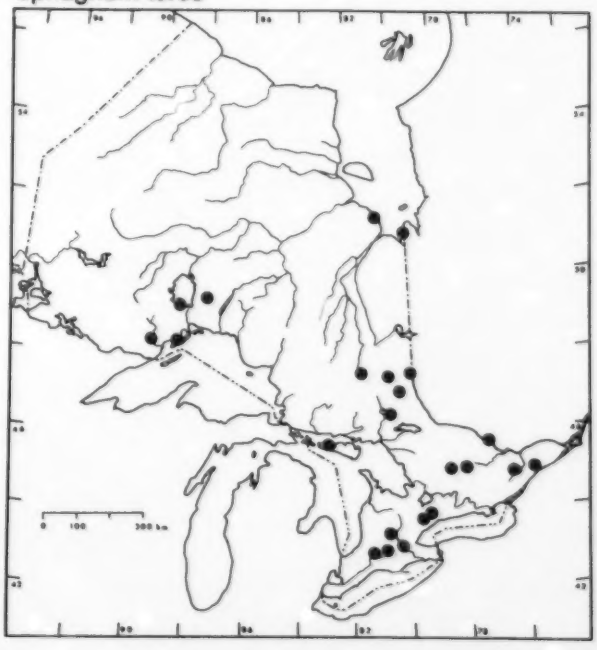
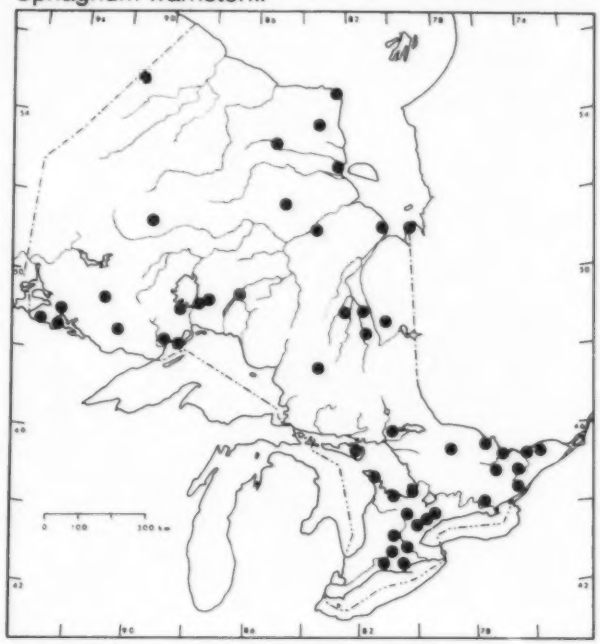


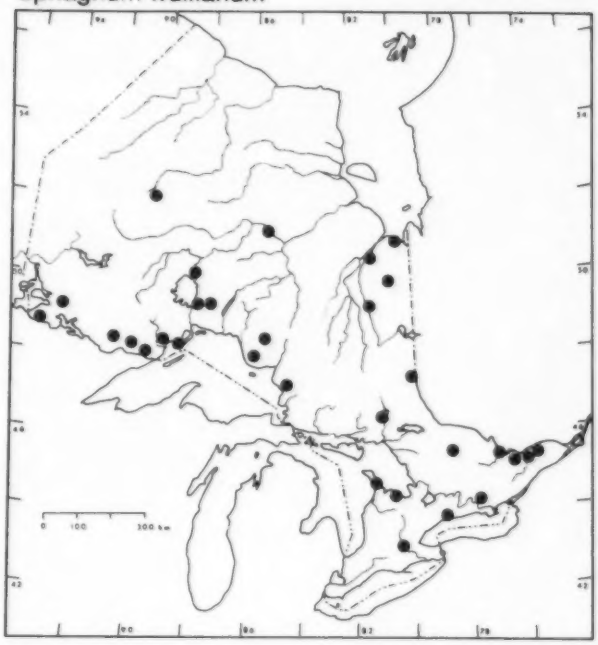
Sphagnum teres



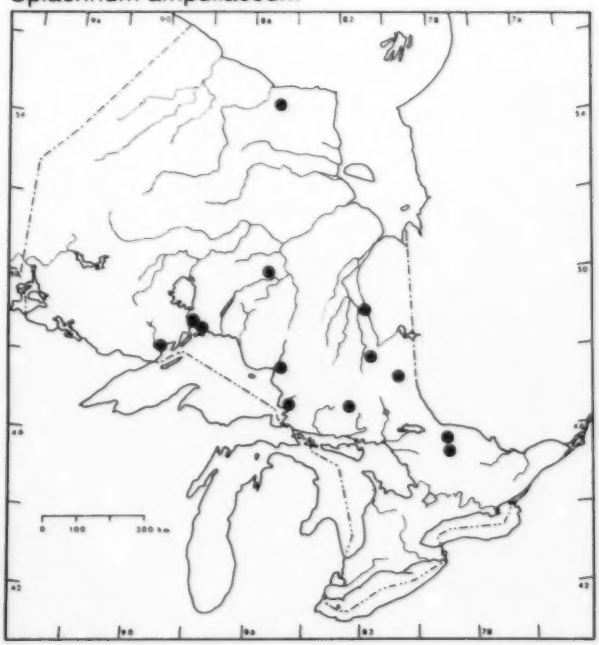
Sphagnum warnstorfii



Sphagnum wulfianum



Splachnum ampullaceum



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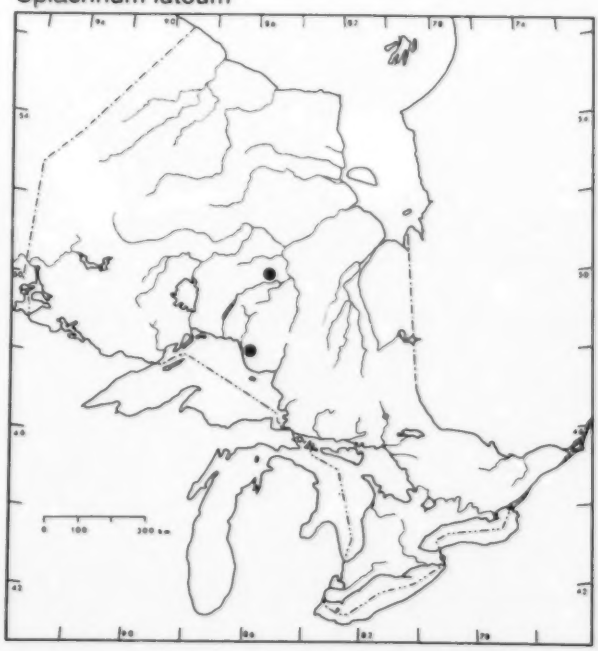
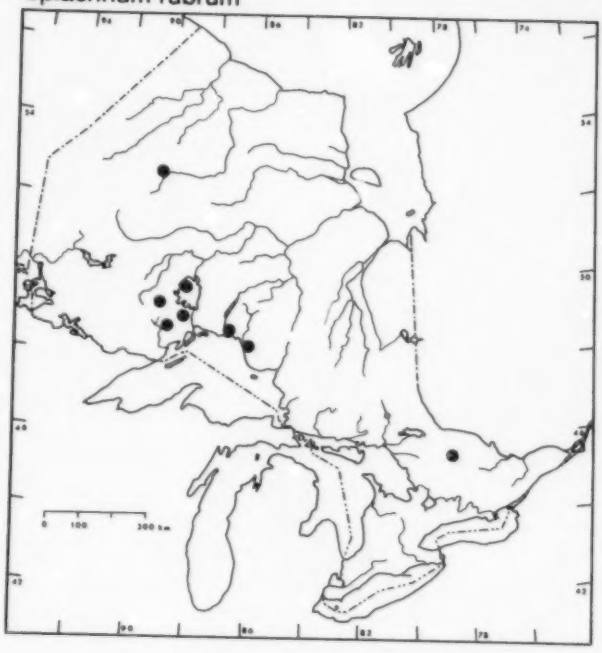
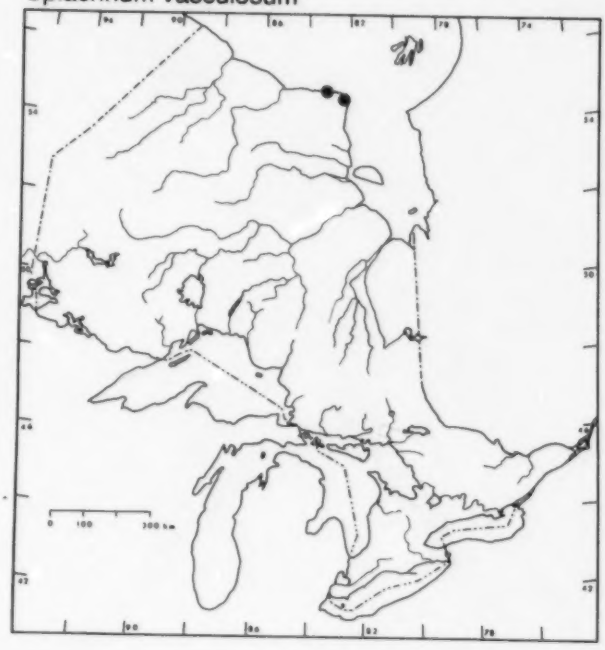


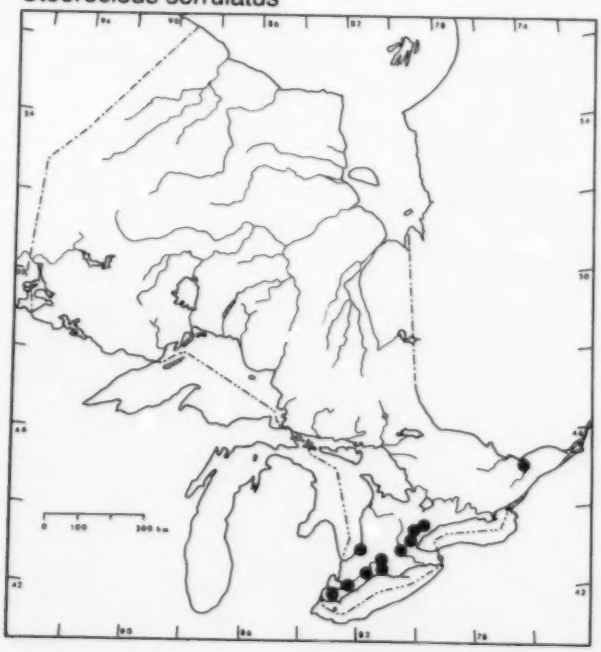
Splachnum rubrum



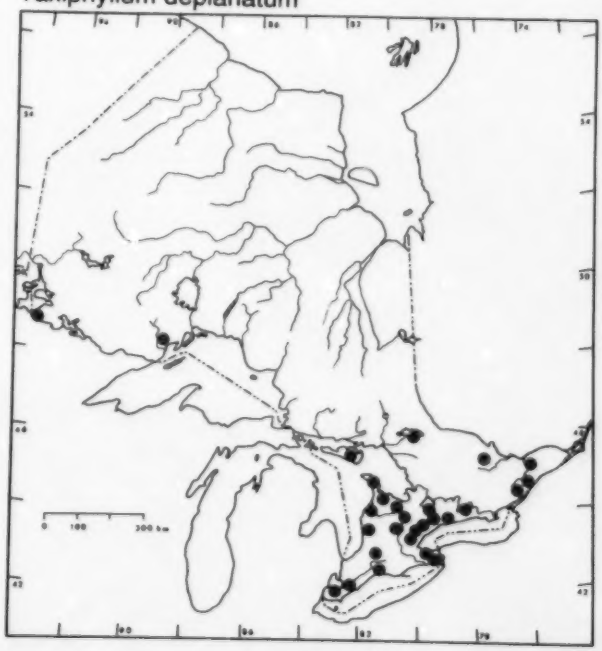
Splachnum vasculosum



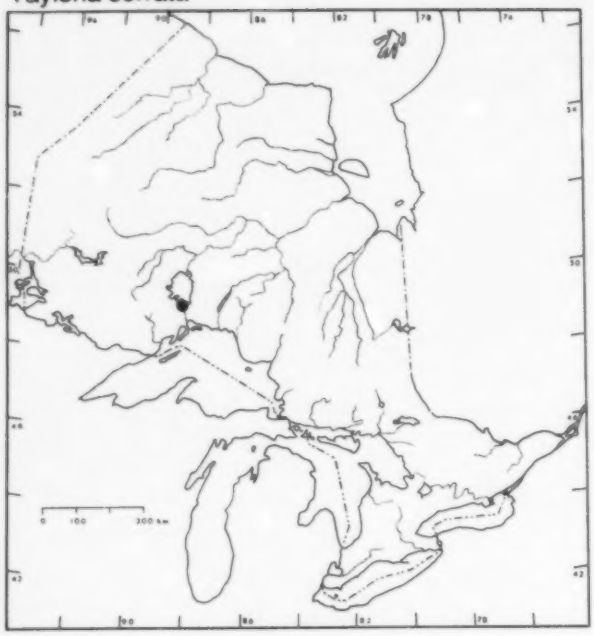
Steerecleus serrulatus



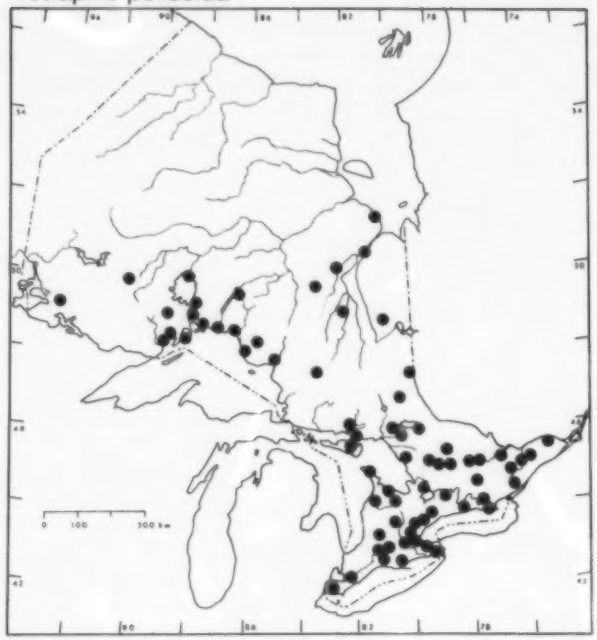
Taxiphyllum deplanatum



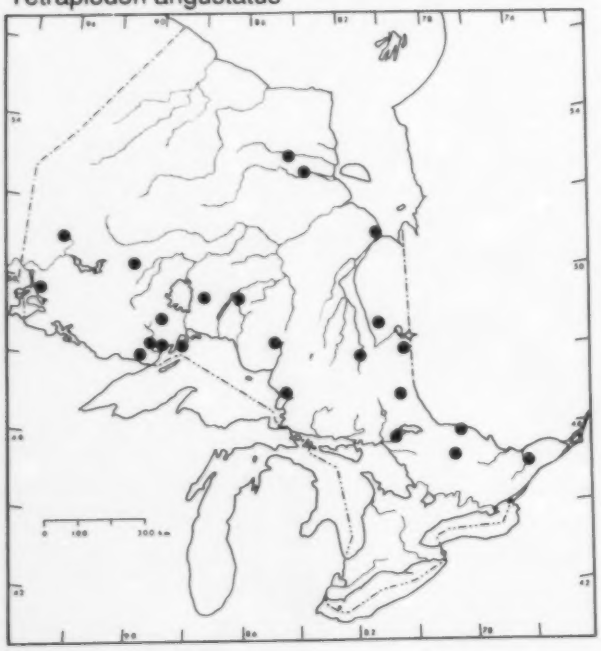
Tayloria serrata



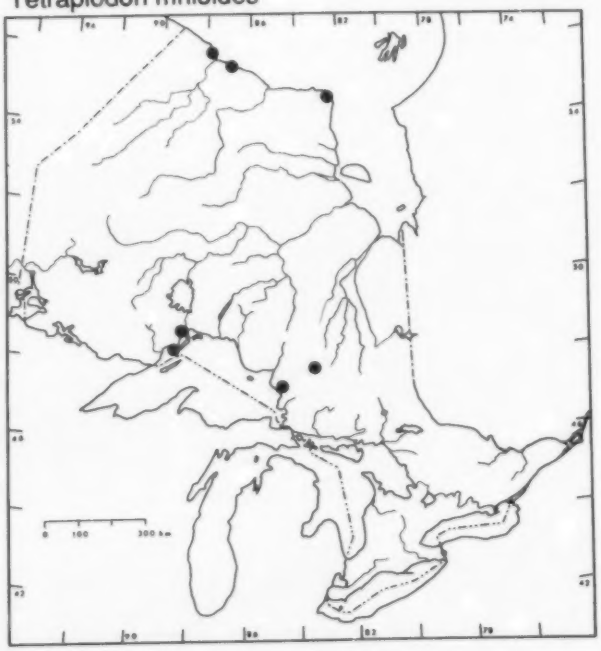
Tetraphis pellucida



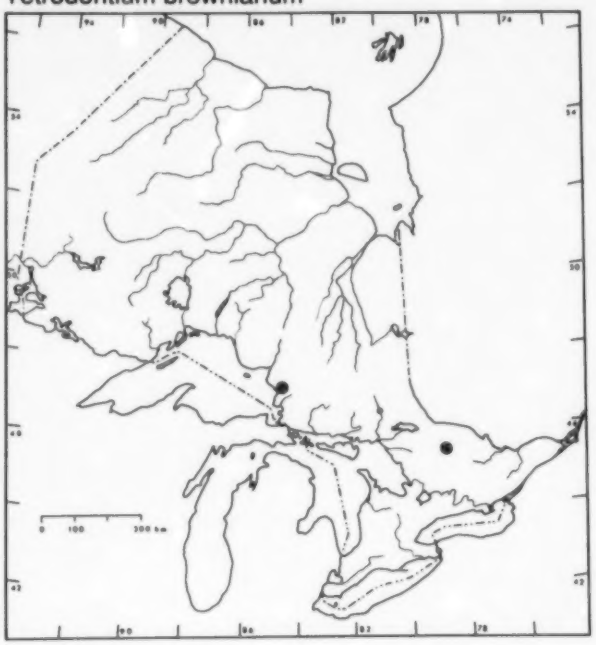
Tetraplodon angustatus



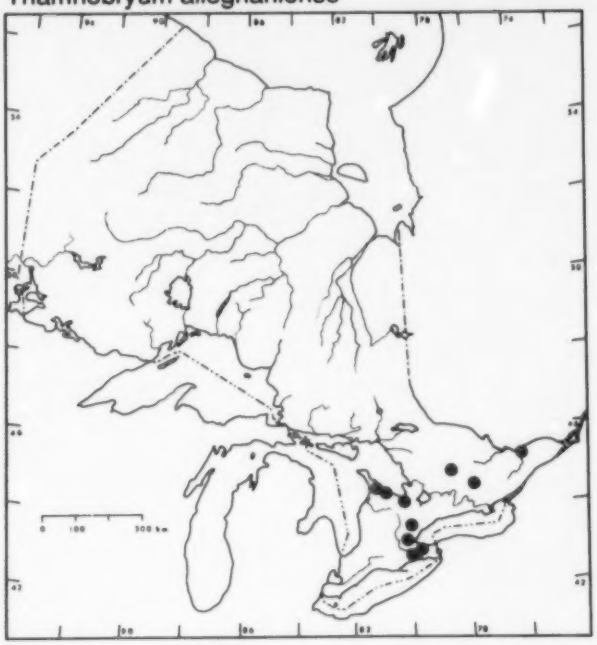
Tetraplodon mnioides



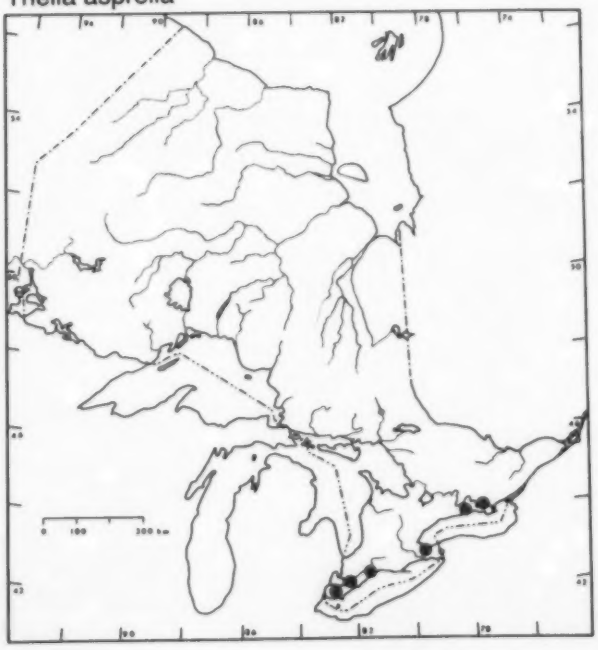
Tetrodontium brownianum



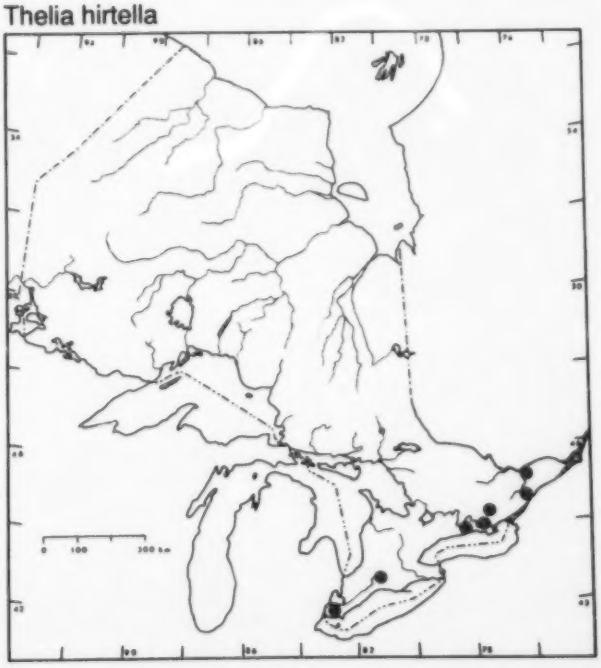
Thamnobryum alleghaniense



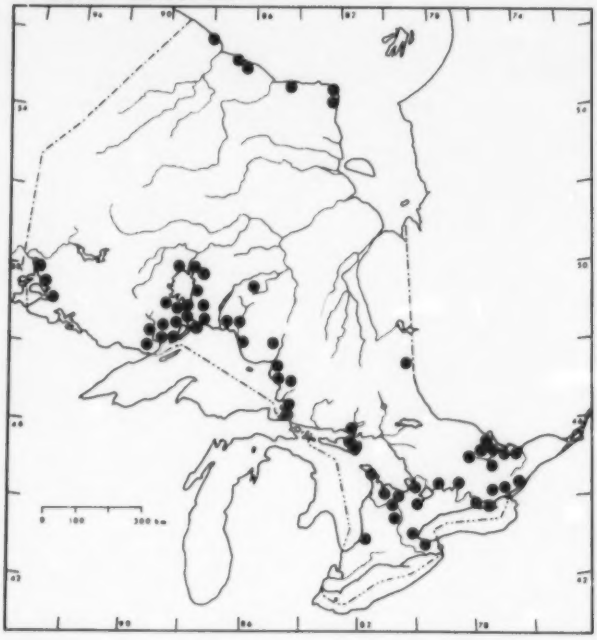
Thelia asprella



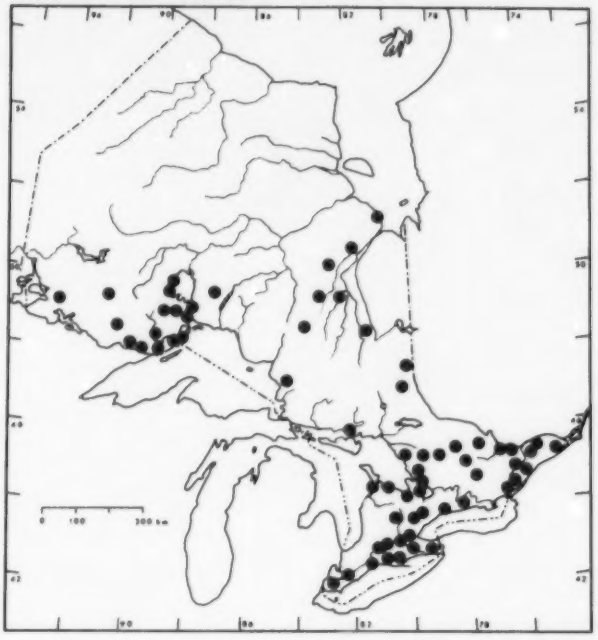
Thelia hirtella



Thuidium abietinum



Thuidium delicatulum



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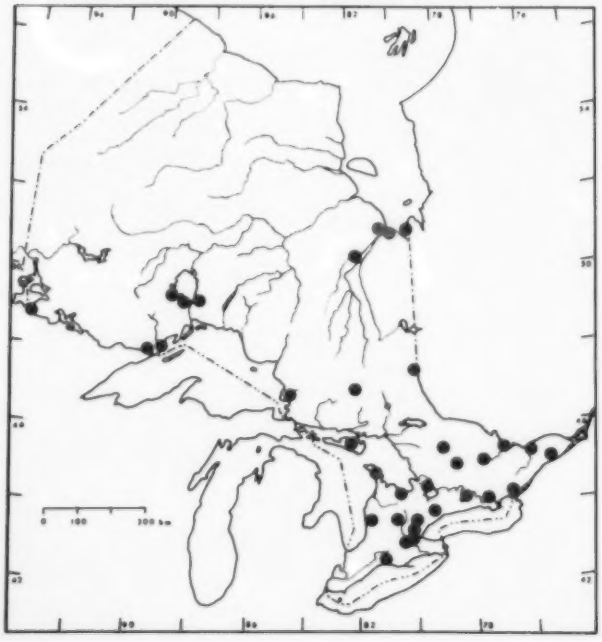
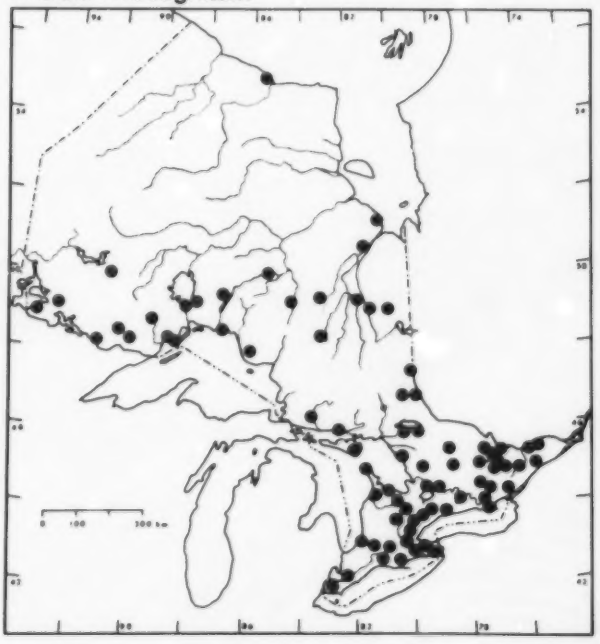


Thuidium recognitum



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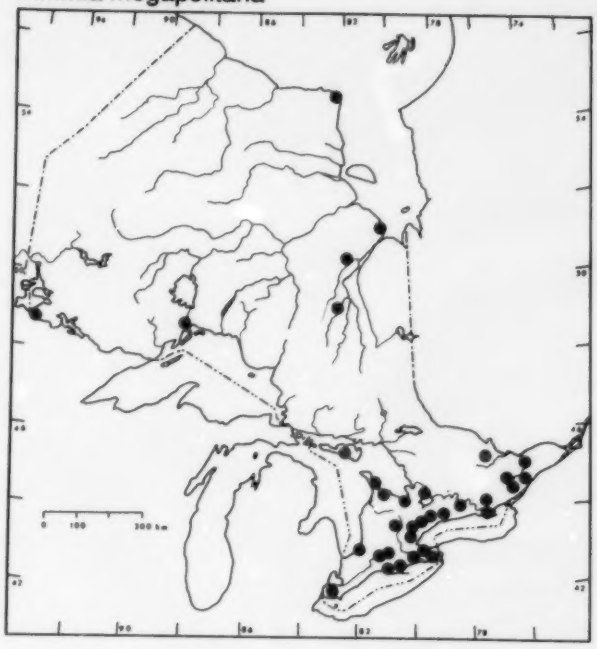
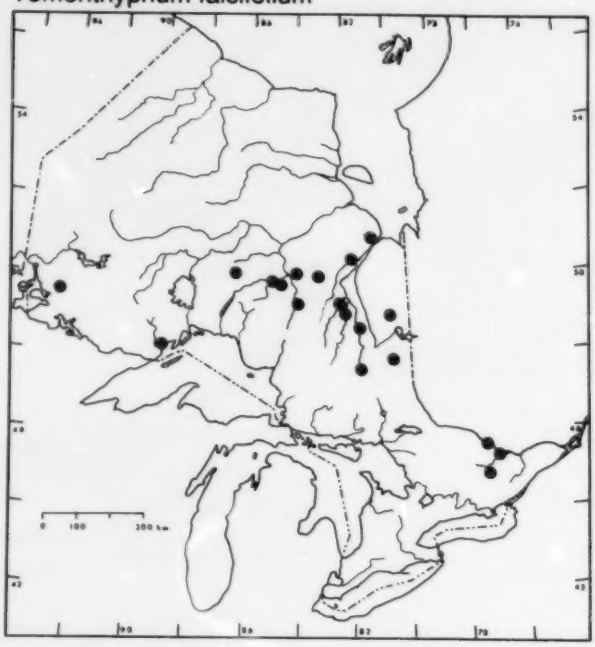
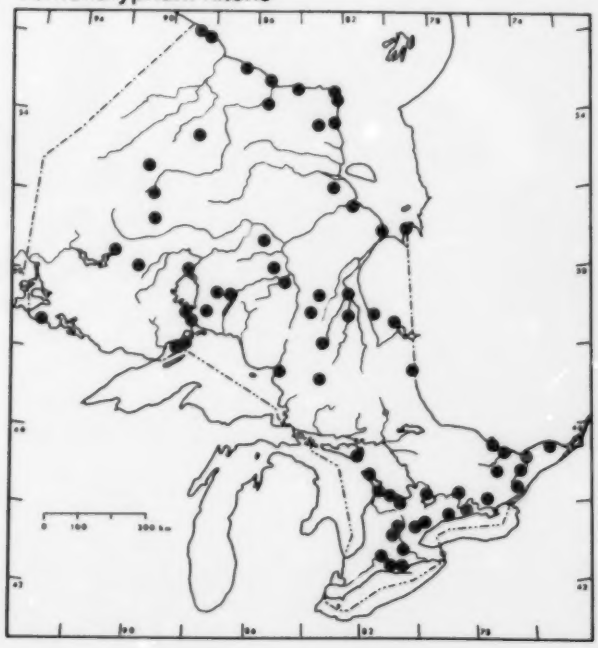


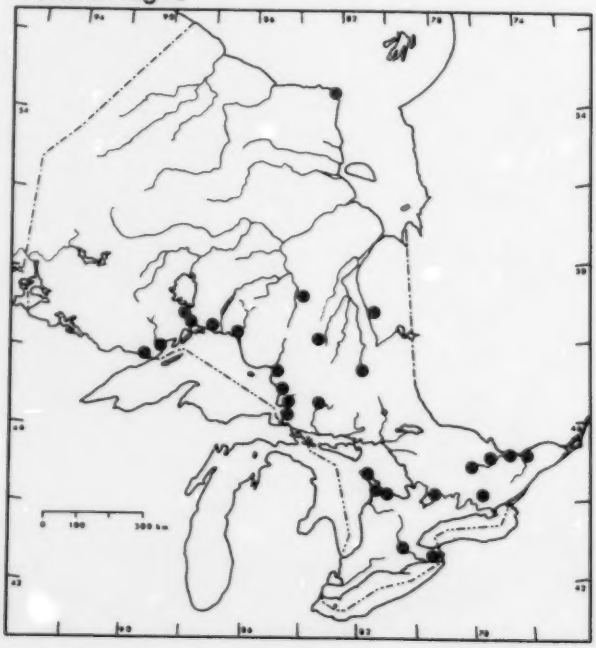
Tomenthypnum falcifolium



Tomenthypnum nitens



Tortella fragilis



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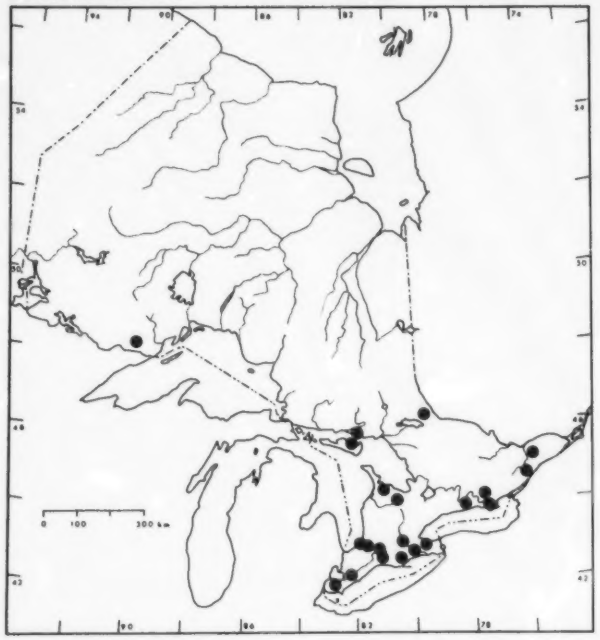
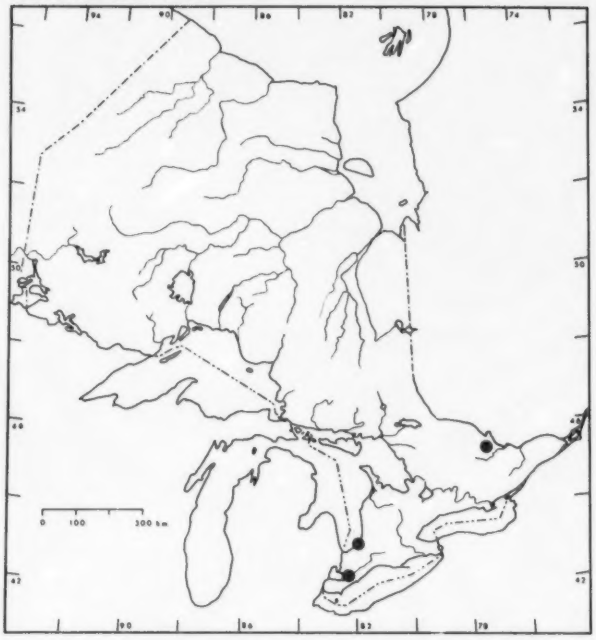
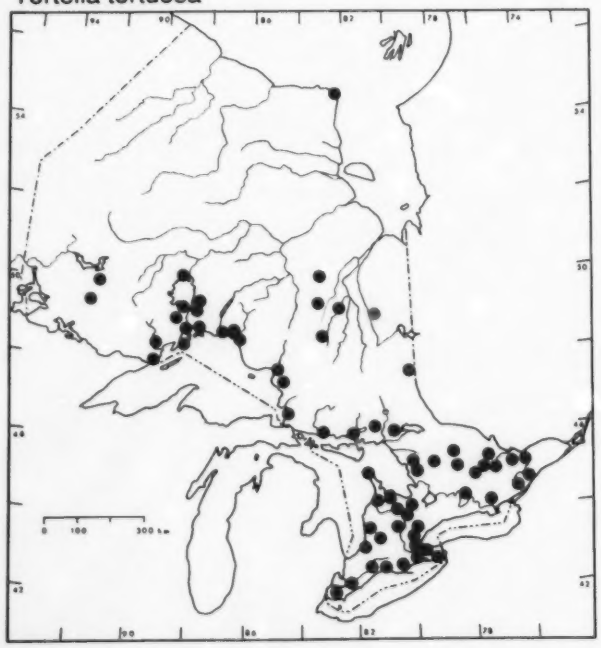


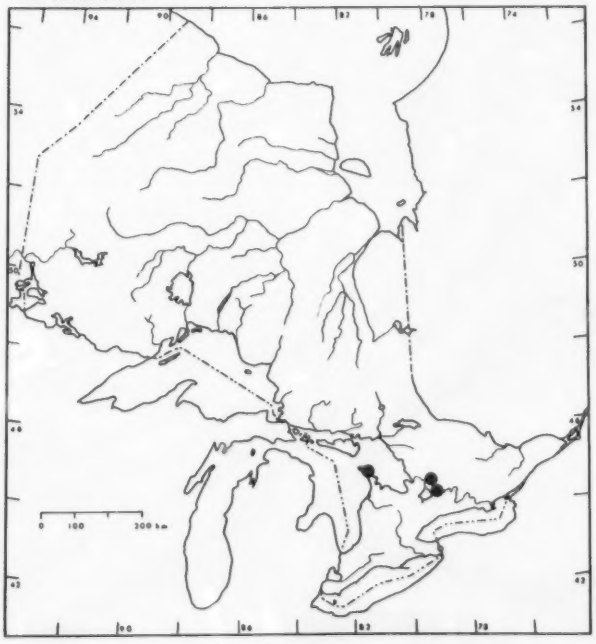
Tortella inclinata



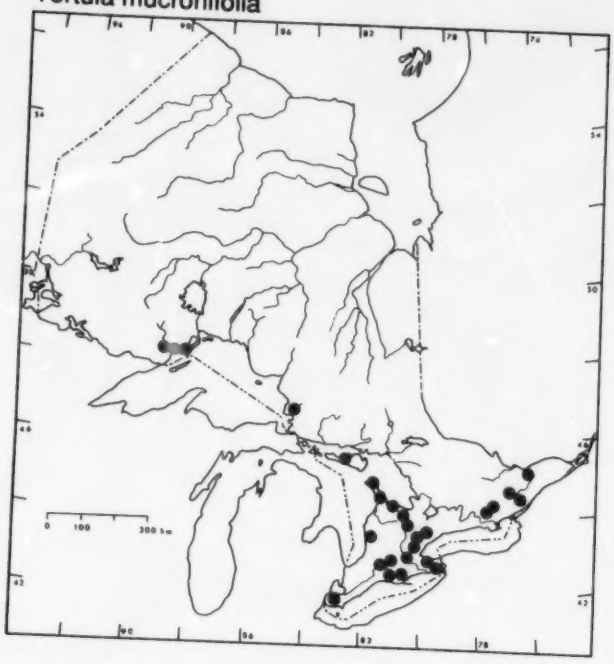
Tortella tortuosa



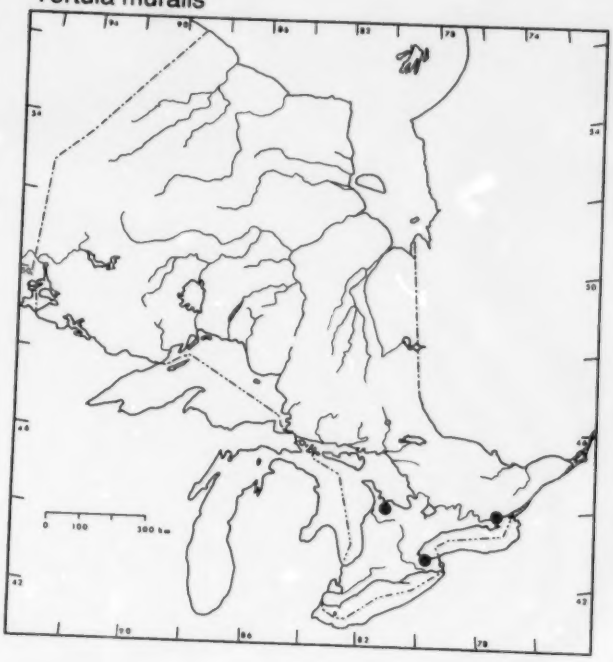
Tortula cainii



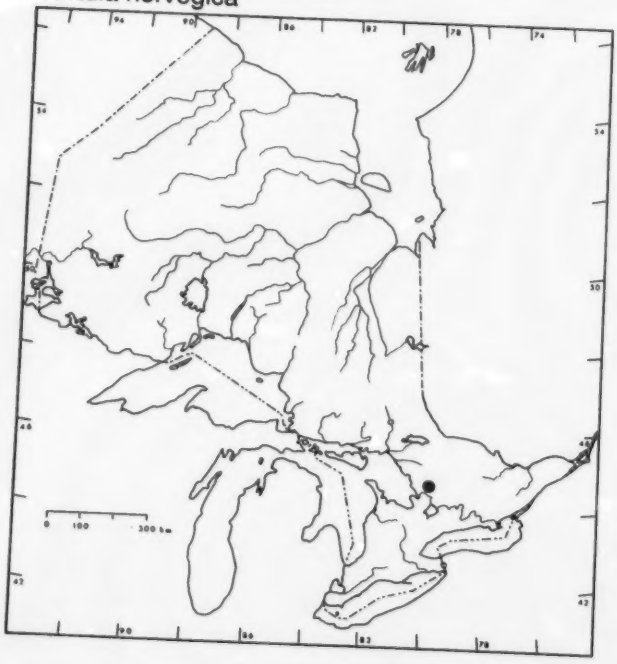
Tortula mucronifolia



Tortula muralis

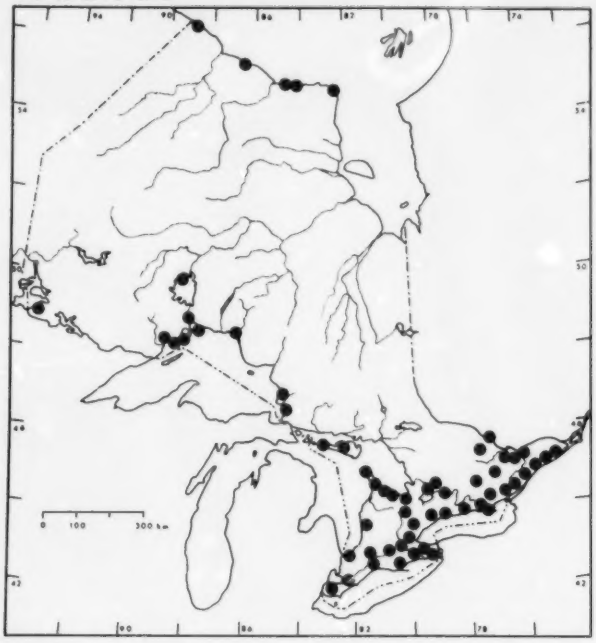


Tortula norvegica

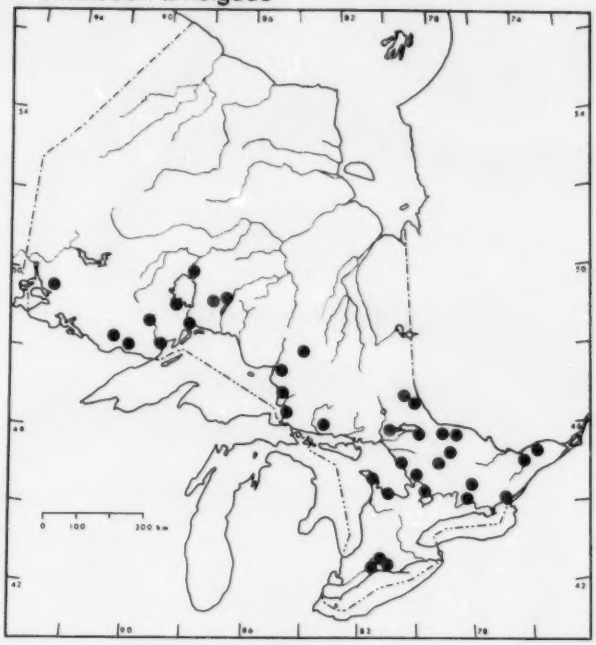


Tortula papillosa

Tortula ruralis



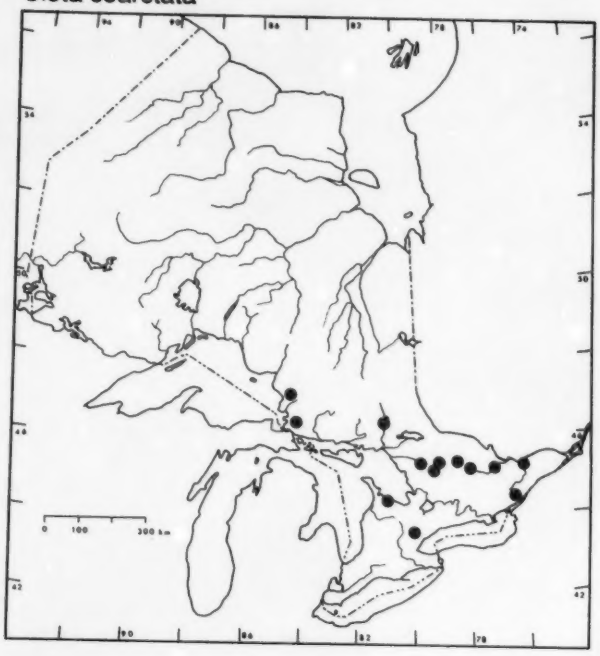
Trematodon ambiguus



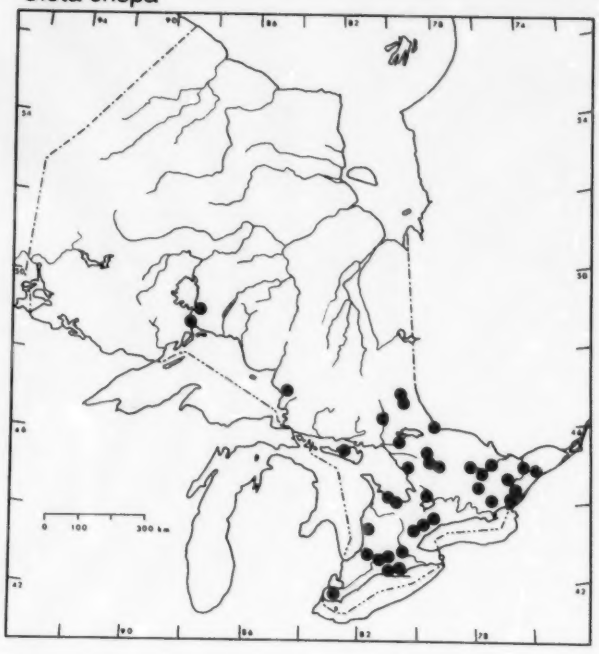
Trematodon longicollis

Trichodon cylindricus

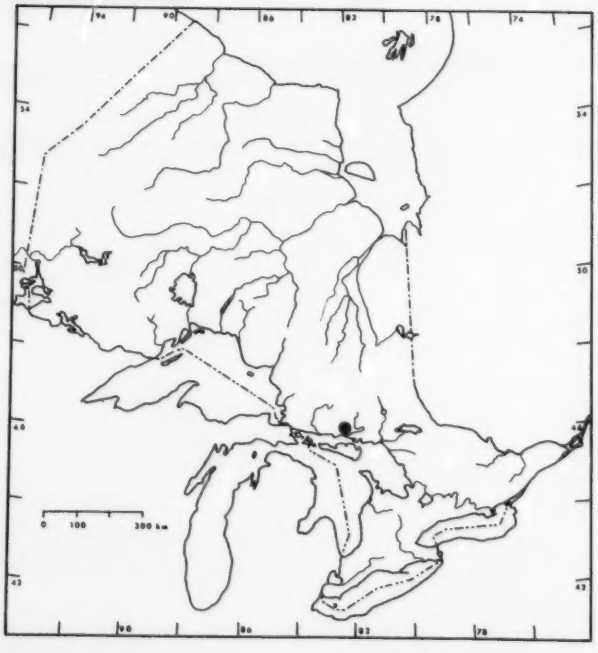
Ulota coarctata



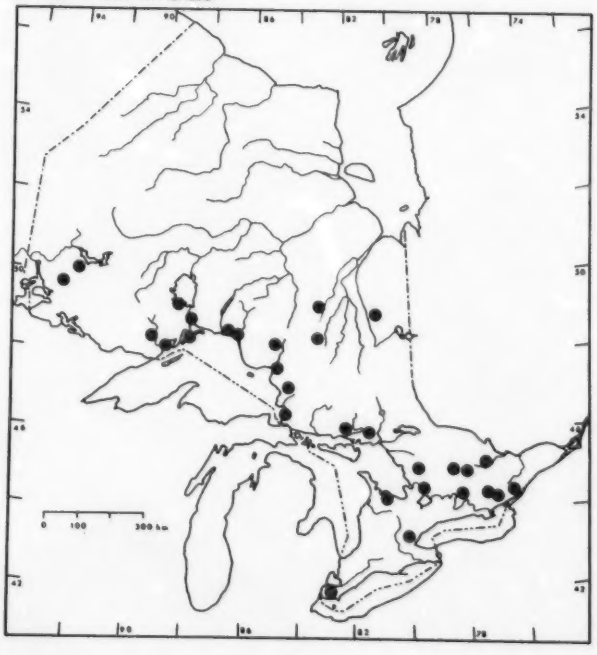
Ulota crispa



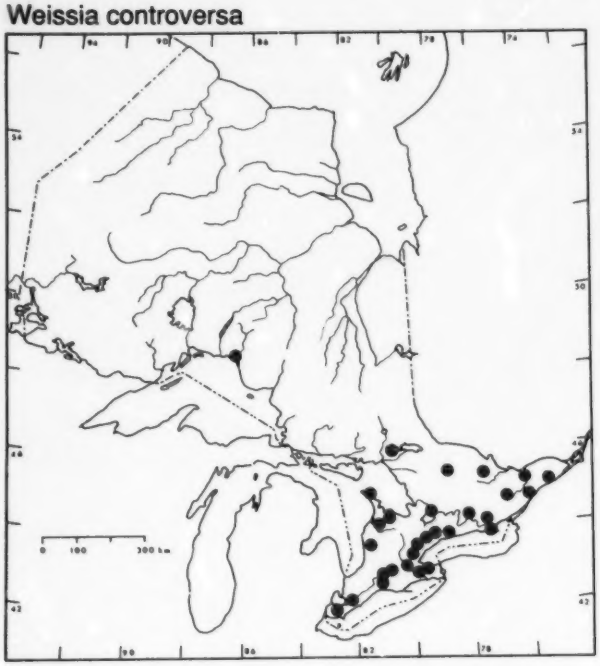
Ulota curvifolia



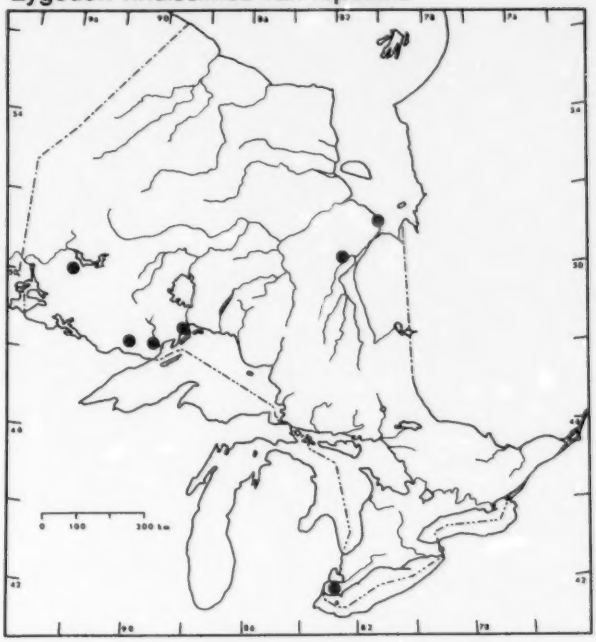
Ulota hutchinsiae



Weissia controversa



Zygodon viridissimus var. rupestris



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